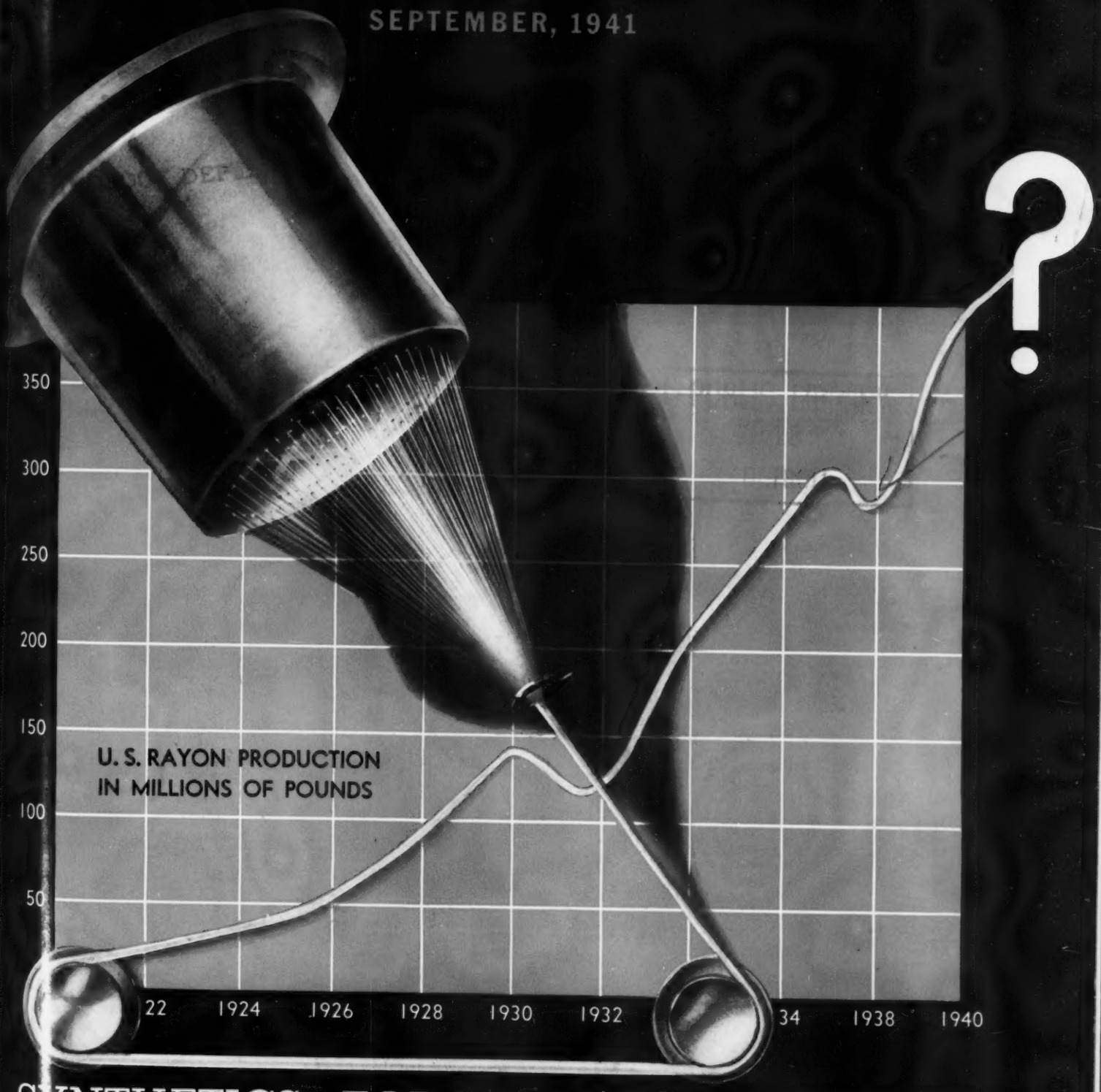
Textile World

SEPTEMBER, 1941



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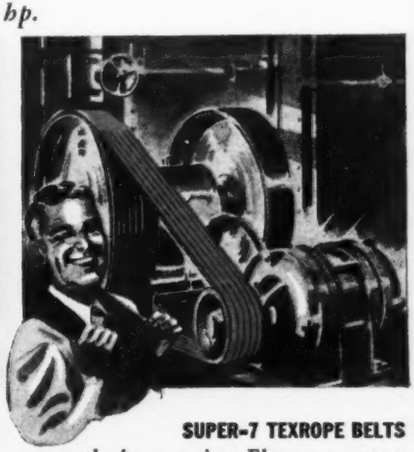

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"Textile School Nonsense"

Comments by Henry G. Lord

The young man who is going to take up textile manufacturing as a career today accepts, as a matter of course, the necessity of textile school education, but I can very well remember the time when a graduate from a textile school was looked upon with suspicion by many of the old-time mill men who had come up through the mill and gained their education by hard knocks and rule-of-thumb experience. They turned up their nose at "textile school nonsense."

The more progressive manufacturers, especially those who had European experience, believed that the United States textile industry would never be able to meet the strong foreign competition unless it had the same skill and training of managers and foremen that they had in Europe. Ever since the 70's, England, Germany and Austria had made large appropriations from the public funds for technical and art education.

When the Philadelphia Association of Textile Manufacturers was formed in 1882, one of its primary objectives was the fostering of textile education. The Centennial Exposition in 1876 had brought realization of accomplishment in textile manufacturing in other countries. Soon after that the School of Industrial Art was started in Philadelphia, and then a year or two later in 1884, the Philadelphia Textile School was founded in conjunction with the Art School. This modest beginning rapidly expanded into a practical plant, first for weaving and then later on followed by equipment for carding, spinning, dyeing, finishing and knitting. The machine builders made very generous contributions, in fact, the equipment was almost entirely gifts or loans for an unlimited period. For many years TEXTILE WORLD gave a gold medal and other prizes for accomplishment in various phases of work.

I suppose it was in recognition of my interest that I was made an Honorary Alumnus. I was the second to receive this honor and now must be the senior on the list, as C. H. Hutchins, former President of Crompton-Knowles who was the first Honorary Alumnus, has long since passed away.

In every important development of human progress, there is associated with it some individuals who had been outstanding in their enthusiasm and devotion of its up-building. As I look back over this interesting period of textile development, I think of Theodore C. Search, a worsted manufacturer in Philadelphia, who was untiring in his efforts in behalf of the Philadelphia School.

In the decade following, the Philadelphia Textile School had made its mark on the industry and in 1895 progressive manufacturers in Massachusetts asked the State legislature to provide funds for the establishment of similar schools in that great manufacturing state. I think of Arthur G. Cumnock of Lowell, Arnold B. Sanford of Fall River, and William Whitman of the Arlington Mills, as among the leaders of this movement which finally resulted in the establishment of the splendid textile schools at Lowell, Fall River and New Bedford.

It was at first thought that these Massachusetts schools would be started on a modest scale, primarily for night-school education of the operators in the mills; it was thought that those looking for more advanced textile education might get it at the Philadelphia School, which might develop as a college. The Massachusetts schools, however, from the very beginning undertook full courses and their three-year courses covered the entire training.

The rapid expansion of cotton manufacturing in the South naturally led to the establishment of textile schools in that section and six of the 13 textile schools in the United States today are located in the South; four in Massachusetts, one in Pennsylvania, one in Rhode Island and one in New York City. The alumni of these schools are the great body of textile school educated men who have raised American textile manufacture to its high level of today.

If that is "Textile School Nonsense" let's have more of it.

HENRY G. LORD, *founder of Textile World and president, Bragdon, Lord & Nagle Division, McGraw-Hill Publishing Co.*

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CONTINUING our series of articles of service to textile men during the defense emergency, we will publish in October an article on civil protection of textile mills. This article, written by a member of the staff of the Safety Research Institute, discusses practical measures for obtaining full-strength fire protection of textile mills under the present abnormal conditions. There will also be a check-up story from Washington on defense developments. The issue will contain further helpful material to assist full-fashioned hosiery manufacturers in solving the problems due to freezing of silk stocks.

Other timely articles scheduled include blending wools for Army fabrics, manufacture of knitted overcoatings, and analysis of covered rubber yarns.

TEXTILE WORLD

DOUGLAS G. WOOLF, Editor

Silk Stockings and Chewing Gum

BOMBS BURST over London, Berlin, Moscow. Millions of men try to exterminate each other. Many more millions starve. Great nations become slave states. The whole world trembles in a titanic struggle between the forces of enslavement and of freedom. The issue hangs in the balance.

And yet none of these cosmic circumstances moves the mass of the American people to a realization of the fact that it is this world they live in which is at war, rather than another world, remote and unimportant to them.

But suddenly there is a silk shortage; women storm the retail counters for hosiery. There is a threat of gasoline rationing. A store tells a customer it can't fill an order for Vitamin B-1 tablets for 10 weeks. We collect old aluminum utensils. If anything happened to the supply of chewing gum or cosmetics, that would be the last straw.

Out of such trivia comes awakening.

Heretofore, war clouds over America have brought no privations to Americans. On the contrary, they have brought lush times. Pay envelopes have bulged; profits have replaced losses; production indices have reached an all-time high; a new silk (rayon)-shirt-and-champagne era has been in the making. The "depression" has been mentioned in the past tense.

But now comes the dawn: just as cold and bleak as in the chilliest of movies. And all because of silk stockings, and aluminum pots and pans, and gasoline stations closed after 7 p.m.

NO, NOT ALL BECAUSE OF THOSE TRIVIA. Industries are closing down because of the lack of materials to process. Priorities are no longer just a Washington term; they reach out into every city and town and hamlet in the nation. They threaten unemployment, bankruptcy, depression.

The extent to which this new threat arouses the people of America to the deadly seriousness of the present situation is all to the good. An all-out effort for defense is demanded.

But there is a limit, strange as it may seem to place a limit on an "all-out" effort. If we stifle all industry except that sector devoted to the production of defense materials, we shall wreck our national economy. More than that, we shall wreck our form of Government.

Get this one fact straight: A democracy cannot wage a war amidst the ruins of a free-enterprise system. Only a dictatorship can do that. Conversely, if we smash our free economy, we shall have to yield our governmental freedom and become a totalitarian state.

SO, WHAT CAN WE DO ABOUT IT? We can do several things:

1. The shortage of critical materials is not entirely an actual shortage. It is partly artificial. Estimates of Army requirements have been over-stated. They have been upped and upped by consecutive passage through military channels, without any real visa. What is needed here is some top-flight organization which will check on alleged military requirements, and which will be empowered to scale down those schedules wherever compatible with national safety.

2. The activities of OPACS have intensified the shortage of critical materials. By placing a ceiling upon the most needed commodities and products, OPACS has prevented the law of supply and demand from discouraging unnecessary use of them. Those materials most in demand have become relatively cheaper than those less in demand and in comparatively plentiful supply. What is needed here is not only a closer coordination between OPACS and the Conservation Division of OPM, but—again—a visa by some over-all organization which will consider the problem neither from the sole outlook of the Army nor from the sole outlook of industry, but which will envision the needs of a nation still free, and still resourceful enough to supply both guns and butter. The patched-up peace between OPACS and OPM is not the answer. That situation will not be relieved without the removal of Leon Henderson.

3. Both the above points lead to this logical conclusion: What is needed most is a revision of our defense organization in Washington. OPM had the makings, but it can't get anywhere if it has to face the fight of rival labor organizations on the one hand, and a squabble with OPACS on the other. Something like a War Industries Board, democratic in its make-up and yet supreme in its power, is essential. The much-tooted recent revision of the defense organization is just a shuffling of the cards. It places no one in supreme power to break the bottle-neck of the President's desk.

Sooner or later, these facts will be recognized. But why wait? This is still a democracy. There is still a Congress. In between passing bills entailing cosmic appropriations, there should be a little time left to pass legislation which would ensure the perpetuation of a free country, and a free economic system. Otherwise, we shall follow other democracies into extinction.

THE EDITOR SAYS

"1941 Model NRA"

Favorable reactions have been received to our editorial suggesting a 1941 model NRA as a solution to our present problem of regulating industry and yet preserving our American system of free enterprise.

Here is one from Fessenden S. Blanchard, of Pacific Mills, who, through his service as deputy administrator of the NRA, found out what it is all about:

"I was much impressed with your NRA editorial and agree very decidedly with the point of view expressed.

"If there ever was a time when we ought to have a self-governing organization for the industry, with proper representation of the different groups as in the case of NRA, that time is now. With the experience of the NRA behind us, I am sure some of its mistakes could have been avoided, though I personally believe that a large part of the blame for its failure to command popular support was due less to the 'fateful machinations of a group of screwball brain-trusters' than to the attitude of industry itself. For example, one of the chief things for which the NRA was criticized was its price-fixing policy and its limitation of production. I have heard various former members of code authorities criticize the NRA for this, yet at the meetings of code authorities in Washington early in 1934 representing all of the industries coming under the NRA, over 90% of those present voted in favor of such clauses in codes.

"I feel that the NRA idea as first proposed constituted one of the most valuable steps forward in American economic life, for it was an attempt to enable industry to regulate its own affairs under proper control and protection of labor and consumer interests. With the inevitable increase in the regulation of industry, the only alternative to such self-government is control by political groups with less knowledge and interest in any one particular industry and with inevitable unfairness and political influences.

"I hope very much that something is worked out along the lines which you suggested in your editorial, and I think fair-minded and far-sighted members of our industry will give their whole-hearted support."

* * *

Another man who had much to do with NRA writes to a friend of ours as follows:

"I really am very much interested in what Mr. Woolf says. I have a tremendous amount of sympathy for his point of view. I hope that he and other people keep on talking about it, because the more I see of developments in Washington, the more I am convinced that we are not going to get anywhere by this pretense of everything originating in a small group of men who are overburdened and who do not know the facts of the different industries.

"I was talking only recently with a man who has been one of the principal dollar-a-year men, and what he told me about the necessity for unified effort and for coordinating industry, and the delays which the present system entails, only confirms my previous view.

"I have also been talking with a man who is thoroughly informed as to the situation in the machine-tool industry, which is the real bottleneck through which everything else has to pass, and there again it seemed to be very clear that cooperative action of the type which was permissible under the NRA could do a great deal toward removing the difficulties there and accelerating output. As you know, there is a great difference between the different companies with respect to rate of operation, hours of labor, willingness to subcontract on parts that could be made by others, etc. The industry itself could devise programs and bring to bear social pressures which would get results in a way that no over-burdened official in Washington can possibly do.

"Moreover, machinery of this sort—once established—could be used instantly to control a post-war panic and to accomplish the transition back to peacetime operation. If we wait until the war is over to set up the machinery that will be necessary for that purpose, the depression will be upon us and the harm will be done before the machinery can be established."

* * *

A southern manufacturer has this to say:

"This is a personal expression to you of interest in your constructive suggestion as to the creation of something in the nature of the NRA as a guide for the textile industry.

"The NRA had its faults, but the self-regulation idea upon which it was based was sound."

Re-establish the Association Executive!

Of all damn-fool ideas coming out of Washington during these last long eight years, the most stupid is the recent dictum against trade-association executives as prospects for jobs in the defense organization.

The alleged reason is that these men and women represent pressure groups, and will fight for their industries' interests against the interest of national defense and of the public in general.

Strangely, the prohibition has not extended to a man like Sidney Hillman who is at one and the same time the top-man in CIO (a pressure group if ever there was one) and a co-administrator of the entire defense program.

With all due respect to individual manufacturers, no ten or twenty or one hundred of them can have the breadth of viewpoint which one trade-association executive possesses. Each manufacturer belongs to a certain locale, is interested in a certain type of product, is limited in his thinking by certain blinders. Naturally so. If he were not, he would be less than an effective executive of his company's interests.

But the trade-association executive has within his or her grasp the knowledge of the problems of hundreds of units, and the vision that comes from such knowledge.

There are both good and poor association officials, of course. The textile industry has been blessed with an unusually high type of man-power and woman-power in its trade groups. These executives hold the key to the answers to our national industrial problem. To deprive ourselves of their help is Hitleresque in its implications. Hitler has deprived the German people of the resources of great groups who originally made that country strong. Through such deprivation, he has dug his own grave, and that of the German nation.

Must we start down that road?

Do we have to turn our American system of free enterprise over to the bureaucrats? Is there no place in the scheme of things for those men and women who know the problems of their industries and who can work out salvation for employers and employees?

Of course there is a place for them. And the sooner it is re-established, the better it will be for the future prospect of American freedom.

Silk Crisis Sounds Doom of Silk

Nylon and the high-tenacity rayons, not cotton, will enhance women's legs

By DOUGLAS G. WOOLF

THERE ARE SO MANY ifs, ands and buts in the situation arising out of the silk stoppage that this writer prefers to bypass them and substitute a few predictions. Rash as that method may be, it is at least one way of getting into the story.

Here is how it looks from here:

1. The present partial curtailment in hosiery production will be intensified in the next few months, despite the revised Washington regulations which make available a quantity of rayon more nearly representing total requirements.

2. The early experiments with rayon as a substitute for silk in full-fashioned hosiery will result in many headaches in the form of both production difficulties and consumer dissatisfaction. As a result of the latter, rayon will get another black eye and possibly the supply available to hosiery mills will at times go begging.

3. Gradually, mills will be able to turn out a rayon full-fashioned stocking which will be "adequate," as the dramatic critics put it. (At least one mill has been doing it for years; see page 79.) This will be only a stop-gap performance however. Ordinary rayon will not take a permanent place as a raw-material for full-fashioned hosiery. As the supplies of the high-tenacity rayons and of such completely synthetic fibers as Nylon and Vinyon increase, they will become the real substitutes for silk. And silk's rule in this zone has been broken for good, no matter what happens in American-Japanese relations.

4. Demand for cotton full-fashioned hosiery will broaden to some extent but it is not a serious contender for the throne vacated by silk.

5. Lingerie in the higher-bracket lines is the product in which the loss of silk will be most felt from the style angle. And if silk ever starts to move into this country again, its major comeback will be in that zone.

6. The net result of the silk crisis will leave a permanent scar upon the full-fashioned hosiery industry. An industry which had already reached a stage of over-capacity finds itself caught in a situation which will involve consumer dissatisfaction and substitution. The bare-leg fad will have to be faced. Seamless mills will have the advantage for a while, and may retain part of it permanently, due to the ability of stockings made of Nylon to retain their shape. These special considerations, plus the coming lower standard of living threatening all industry as the defense bill is paid, may involve reduced consumption of full-fashioned hosiery and idle full-fashioned machines. This is not a pleasant prospect but it must be faced.

All the above is offered without guarantee.

International News Photo

Typical of the rush to buy silk stockings at retail in early August is this scene in a New York store. Panic subsided when ample supply was evident

The Silk Crisis in Washington

THE SERIES OF ORDERS and communiques issued by Washington officialdom during the first month of the silk crisis would have done justice, in volume, to any major war. Unfortunately they were not as effective as voluminous.

The main problem at issue, of course, was that of making supplies of raw material available to full-fashioned hosiery mills and other former silk users in order to avert or at least minimize curtailment of production. On paper it looked as if that object had been achieved to a considerable degree by the OPACS order of Aug. 2 that rayon producers set aside 10% of their total daily output for sale to former silk-consuming mills to meet the silk shortage. Of this about 7% would go to hosiery mills and 3% to weavers. That meant that hosiery mills would be entitled to yarn at the rate of some 30,000,000 lb. annually.

But it soon became apparent that this was on paper only. In the first place, acetate-yarn has not been used

successfully in hosiery manufacture, and so this took off about one-third of the available "supply," leaving 20,000,000 instead of 30,000,000 lb. But this was only the beginning. It was also soon realized that the order did not specify that the 7% should be over and above the quantity previously sold by the yarn producers to hosiery mills, principally for seamless manufacture, and that consequently that quantity represented part of the ordered allotment. Since that amounted to about 18,000,000 lb., there was left out of the original 30,000,000 lb. only some 2,000,000 lb. of new fiber available to hosiery mills.

And so the industry was about back where it started from.

Fortunately, nearly a month of hard work on the part of the newly-created silk section of OPM, headed by Lessing J. Rosenwald, with the help of experts from the industry, corrected this original mistake and developed a formula to insure the availability of at least the 10% of current rayon production specified originally in the Aug. 2 order.

As the result of this study, an order was issued Aug. 30, by the Division of Civilian Supply of OPM, extending for another month the civilian allocation program for rayon yarn which otherwise would have expired Aug. 31, but amending it as follows:

1. The extension provided that the amount of rayon yarn required to be set aside for sale to hosiery manufacturers and other silk users must be over and above the amount producers had been selling to hosiery makers and other silk users before the allocation program was instituted.

2. The extension also provided for continued holding in the pool that rayon yarn set aside during August but not purchased.

3. It also increased to 100% the amount of acetate rayon yarn originally set aside for hosiery makers which producers were permitted to dispose of without restriction.

For the broad future, a still more important change in the approach to the problem is in the making. It is understood that subsequently the allocation of rayon to hosiery mills will be based upon a certain percentage of producers' spindles rather than of their poundage output. In this way, new users will not be able to demand a sufficiently heavy poundage of finer deniers to result in an unwarranted heavy cut in quotas for regular users. If the former silk-consuming mills want the spindles, whose output is earmarked for them, to produce 50 and 75 denier rayon rather than 100 and 150 deniers, they and not regular weavers and knitters will lose poundage.

On Aug. 25, Jesse Jones, Federal Loan Administrator, announced that Defense Supplies Corp. will purchase about 100,000 bales of raw silk for defense purposes. The buying price will be the selling price established by OPACS on Aug. 3. Only unopened bales will be purchased. Silk must be delivered at the seller's expense to a designated warehouse. Charles J. Huber, of United States Testing Co. will supervise the Government's silk buying.

The Silk Crisis in the Mills

NO BLANKET STATEMENT can be made concerning the effect of the silk crisis upon hosiery mill operations. Conditions varied widely; among the variables were the quantity of silk in process, the extent to which the individual plant was utilizing Nylon or other fibers, the type of goods produced, etc., etc. However, partial curtailment started in a majority of mills within two weeks of the start of the crisis, and many were threatened with complete shut-down.

As for the future, Taylor Durham, secretary of the Southern Hosiery Manufacturers Association, estimated early last month that ample supplies of substitute yarns would be available within six months. Since he made that statement, the improved arrangements that have been worked out in Washington for rayon supplies, as noted in another section of this article, make such an outcome even more probable.

However, whether or not all the yarn which becomes available to hosiery mills will be purchased by them is another question. That depends largely upon consumer reaction to the early rayon full-fashioned hosiery.

A summary of the situation in hosiery, made by Earl Constantine, president of the National Association of Hosiery Manufacturers, last month, is abstracted below:

"The hosiery industry is a regular user of rayon yarn to an amount approximating 19,000,000 lb. per year. This amount has been used partly in the production of women's seamless hosiery, and partly in men's half-hose, anklets, etc. The present problem is to make available additional amounts of suitable rayon yarns to be used by the hosiery industry as substitutes for silk. These additional amounts are estimated at about 22,000,000 lb. per year. This would make the total annual consumption of the hosiery industry over 40,000,000 lb.

"The rayon producers have been

Silk reelers in Japan, who no longer can sell to the American market

urged by the proper authorities to cooperate particularly with furnishing our manufacturers with such yarns as they may need for experimental purposes. On the other hand, we again urge our manufacturers to confine their requests for yarn to those amounts which they can use immediately, and we repeat our suggestion that those of our manufacturers who have never used rayon before, restrict their present requests for yarn to those amounts which they require for experimenting. . . .

"The problem of securing suitable cotton yarns to be used as substitutes for silk is even more difficult than that of securing rayon substitutes. Our estimates show that our industry will now require high count cotton yarns to an amount in excess of the American production. Study is being given to securing the needed supplies from England where there is considerable capacity.

"The request of the Government that at least 50% of any Nylon yarn processed by our manufacturers be used in part-Nylon constructions, may possibly create a problem of shortage of pre-boarding facilities. If this should develop, this association will survey the industry for the purpose of ascertaining what manufacturers have surplus preboarding capacity and would be willing to make it available to others who are short of such capacities. One method of relief may be an extension of the weekly use of such equipment. We do not anticipate any serious difficulty.

"Under date of Aug. 13 we received from Mr. Sidney Hillman, associate director general of OPM, a request that in the interest of reducing the problem of unemployment resulting from the present dislocation in the industry, our managements restrict the number of hours worked by their employees to 'an absolute maximum of 40 working hours per week.' The embargo on raw silk is creating serious problems and uncertainties to a large number of employees of our industry. All of our managements are seriously concerned with this condition. The suggestion made by Mr. Hillman is intended to alleviate the condition by spreading employment as widely as possible during the period of transition. We heartily endorse his suggestion and urge that any of our managements which may be operating over-time shifts comply with it as promptly as possible.

"The sudden withdrawal from the silk hosiery industry of its principal commodity has necessarily resulted in serious dislocations and, in most cases, in reduced operations. Under such conditions a rise in unit costs is inescapable. Our manufacturers generally have avoided price readjustments of a character which would indicate taking undue advantage of an emergency situation. Such a restrained policy is proper at all times and particularly so under present conditions. Wherever upward adjustments are made they should be based on costs."

In a later letter, Mr. Constantine said, "Plan your (rayon) constructions on the basis of 100 den. yarn for the boot or leg, and 150 denier yarn for the welt. There is very little spindleage on yarns below 100 denier. . . . We do not believe that our manufacturers of silk hosiery, as a whole, can hope to operate for a time better than 70% of what they were previously enjoying."

THE UNDERWEAR INDUSTRY also has a stake in the silk situation. Its position was stated by Roy A. Cheney, president of the Underwear Institute, as follows:

"The net effect of the raw silk order is that available supplies will be diverted almost entirely to Government use and an additional drain will be placed on the rayon, Nylon, and other synthetic yarns, thereby creating some embarrassment to underwear and glove manufacturers and fabric knitters who have already been hard pressed to secure sufficient synthetic yarns.

"At the first threat of this situation the Underwear Institute promptly launched a program to protect its manufacturers. Notice of the needs of the industry were immediately forwarded to Mr. Henderson and others in OPM dealing directly with the problem. The Institute also went on record with every producer of synthetic yarn selling to our industry, stating that we would expect full protection of our interests in any policy which they might formulate.

"The attitude of the rayon yarn producers themselves is considered to be favorable to protecting underwear, glove, and other regular customers. It was stated by some producers that

WHO'S TO BLAME?

AGAINST THE BACK-DROP of a world tearing itself to pieces, the fading of silk stockings from retail counters is of infinitesimal importance. But from the standpoint of the 175,000 workers involved, and of the manufacturers whose economic destiny is tied up in the hosiery industry, that seemingly minor circumstance is a major one.

There would be no blame if this had been a bolt from the blue. If Japan had suddenly appeared at the end of July as a sinister cloud upon the American scene, unforeseen, unpredictable, the course of events during the succeeding weeks would have been entirely excusable.

But this was no surprise party. For months, in fact for almost two years, OPM, OPACS, industry and labor have known that just this was likely to happen. The Government has been urged to establish a silk stock-pile. More than that, there was in the making a proposal for a barter arrangement between Japan and the United States whereby the bales of silk impounded by the Japanese Government would have been traded for an equivalent dollar-value of cotton similarly impounded by our Government. Nothing came of all this, but frustration and unemployment.

This is not an instance all by itself. It is of the same ilk as other abortive experiments in the defense program. It heads up, again, into the absence of concentrated authority in one man in OPM.

The naive expressions found in the "orders" and other releases from OPM and OPACS on the silk problem bear out the absence of intelligent understanding of that problem.

This naivete found its full expression in the pontifical order to rayon producers, whereby they were to allocate 10% of their production to manufacturers who had previously depended upon silk. The stupidity of that order is revealed in the accompanying article.

It was not until a few qualified experts were drafted to Washington that the problem was belatedly solved. But meanwhile much of the damage had been done.

Before we get through this man's war, we as a nation will come to the realization that it can't be won by well-meaning but ill-informed people.—*Editor.*

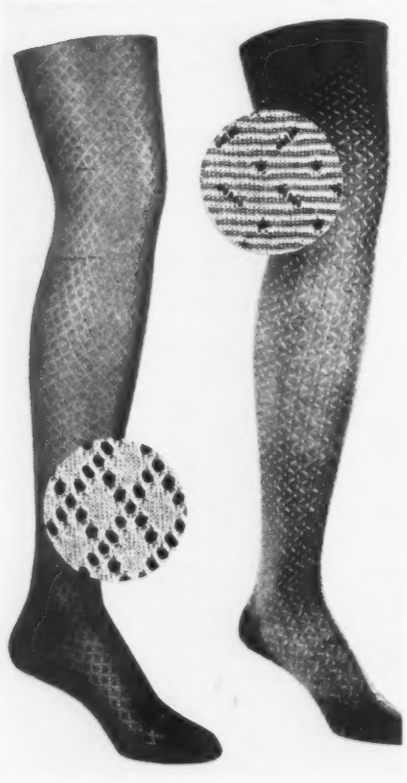
At Seaside, Ore., an air-brush artist is tinting legs in lieu of stockings

they have made it clear to OPACS that they saw no real reason why they should voluntarily divert rayon yarn from regular customers to others who would not have thought of using rayon until an emergency had developed and who had shown no willingness in the past to consider the development of quality rayon items. At the same time, they had made it clear they would cooperate with the Government but that the cooperation must not be all on the side of the rayon industry. They expected the hosiery industry to show a willingness to cooperate by preparing to use existing rayon counts and not to expect the producers to change over their output to provide special counts, nor to expect a monopoly of finer deniers. This very situation, while very logical, was nevertheless the reason for the OPACS mandatory order reserving for hosiery and other former silk consumers 10% of the synthetic yarn output."

The Silk Crisis and Cotton Hosiery

IT WOULD BE FUN if we could solve the silk crisis and dispose of surplus cotton stocks at one and the same time. This writer can imagine no more benign Act of Providence, from the standpoint of the textile industry.

But it just isn't so. For two reasons. First, women en masse are not going to wear the horrific cotton stockings designed by the U. S. Department of Agriculture at a cost of $60,000 plus—and plus a lot, by the time the present promotional campaign reaches its peak. This writer has seen the product both on and off legs, and he is confident that most women will follow the bare-legged fad rather than distort their limbs by the hideous meshes involved in the 150 "designs" created by the Bureau of Home Economics of the Department of Agriculture. We don't know *too* much, but we know that. . . . Second, there are not available enough fine cotton yarns to make a dent on the demand created by the stoppage of silk.



Typical combed yarn full-fashioned stockings styled by the Government

On this latter point, we call on the authorities. At our request to the Southern Combed Yarn Spinners Association, Mildred G. Barnwell, executive secretary, submitted the following statement of fact:

"There is a very definite bottleneck on fine combed cotton yarns as silk substitutes in hosiery, but it is due to no fault of the combed yarn spinners, who would like to cooperate with the hosiery manufacturers by furnishing material for their plants, and who would like to see come true their long-time dream of fine cotton lisle hose as an important wardrobe item.

"After two decades of increasing shrinkage in the total number of spindles operating on super-fine counts, at this time we have in the South only 79,379 spindles producing combed sales yarn in the super-fine bracket: 86s and up. It is from this small group of producers representing less than 6% of the combed yarn spinners and only 1/3 of 1% of the entire textile industry that fine cotton yarns for hosiery must be drawn. Not only is this small number of super-fine spindles a factor, but the length of time required to produce a pound of super-fine yarn must be considered. For instance in a standard work week of 80 hours operation one spindle will produce approximately 2.78 lb. of 50/2 combed yarn, but a spindle producing 100/2 must run a full 80 hours in order to produce only 0.84 lb.! In hosiery yarns the most desirable numbers are 120/2 and finer which means a greater reduction in weekly production per spindle the higher the count goes.

"In terms of actual production, southern combed yarn mills running at completely full capacity are producing today less than 50,000 lb. a week on all super-fine counts. Out of this production 57% is already going to knitters and mercerizers, and it is estimated that 90% of that poundage is earmarked for the hosiery trade. Reports from New England mills are that little if any super-fine yarns are being produced for the hosiery trade. Therefore the burden is on the southern spinner.

"With 57% of the southern combed yarn production going to knitters and mercerizers, the other 43% must be divided between the insulating trade, the rubber-covering trade, fine lace manufacturers, label weavers, ladies-glove trade, and others.

"The spindles now running on medium fine counts 50s to 86s cannot at this time be changed over to super-fine numbers since they are heavily loaded with orders for national defense which include yarns for mosquito netting, for seaming and looping thread, and other equally important purposes. It simply boils down to the fact that the super-fine yarn spinners are in the same position in which all other combed yarn spinners find themselves. They are sold up for many weeks, which includes a heavy defense load, and before any new deliveries can be started they must deliver present orders on their books. If they have to decline business from hosiery manufacturers, it is due solely to production and delivery problems.

"At this time only 27,000 lb. weekly production of all counts from 86s and up are available for hosiery needs. This total is about one-half a drop in the bucket. In terms of hose that poundage, if it were all 120s—the most desired American-spun yarn for hosiery—would mean only 1,248,000 doz. all-cotton hose a year, or if it should be used only in the welt, toe, and heel, 2,500,000 doz. Compare this to last year's consumer requirements of 43,000,000 doz. full-fashioned silk hose.

"There has been too much publicity about cotton hose developments when the truth of the matter is that yarns are not available in any quantity, and under present conditions that quantity will hardly be increased."

"We'll give up gasoline," cried they,
"Cut down on flour and meat,
We'll dim the lights on blackout nights,
We'll taboo all things sweet;
We'll tearfully give up our menfolks,
We'll stoop to loans and hockings,
But we'll NEVER while there's breath of life,
GO BACK TO COTTON STOCKINGS!"

(Quoted by C. Walter Seidel in a recent market letter)

From Silk to Rayon and Cotton

Hints to full-fashioned knitters on adjustments and precautions needed

CORRECT METHODS for producing silk hosiery with strong, elastic rayon welts were described in our August issue. An article on knitting Nylon hosiery appears on page 111 of this issue, and others ran in our September, 1940, and April, 1941, issues. The following article deals with the production of all-rayon and cotton hosiery. Further technical articles dealing with various problems confronting the full-fashioned hosiery industry as a result of the silk situation are now in preparation and will appear in early issues.

★ ★ ★

A QUICK SOLUTION cannot be expected to all the manufacturing problems which knitters of full-fashioned hosiery face because of the necessity for changing over from silk to rayon and cotton. However, by familiarizing themselves with the properties of rayon and cotton knitting yarns, by making fullest possible use of the information which is available on production of hosiery from these yarns, by experimenting in their own plants, and by carrying out serviceability tests, they should be able within a short period of time to turn out a variety of styles which will be satisfactory to consumers. The greatest danger is that some mills will start commercial production of rayon hosiery before they have gained sufficient experience and skill in handling the various types and brands of yarn. Individual manufacturers and the full-fashioned hosiery industry as a whole should do everything possible to prevent flooding of the market with inferior stockings, as this would result in a consumer aversion to rayon hosiery which would be extremely difficult to overcome.

Rayon full-fashioned hosiery has, in the past, been relatively unimportant from the volume standpoint. Over a period of years, however, a considerable amount of experimentation has been carried out, and a few mills have acquired experience through actual production on a commercial scale. One company which for many years has specialized in the production of rayon full-fashioned hosiery is Union Mfg. Co., Frederick, Md. The writer is particularly indebted to Louis L. Wilson, president and plant manager of that company, for much of the data included in this article on manufacture of rayon full-fashioned hosiery. The information supplied by Mr. Wilson has been supplemented with data from several other sources. The methods described and recommended are, therefore, a composite of those followed in a number of different mills.

THE FIRST STEP in changing over from silk to rayon is to clean the knitting machines thoroughly and adjust them carefully. All accumulations of silk gum should be removed from tensions, carriers, sinkers, dividers, and other parts with which the knitting yarn comes in contact. Machines should be put in perfect condition, as sinker and needle lines from any cause show more plainly on rayon hosiery than on silk. Due to the fact that rayon has less elasticity than silk, it is necessary to adjust the machines to produce a much looser stitch. If the stitch is not correct, the stockings are likely to pull out at the seams. Several trials will undoubtedly be necessary to determine the most satisfactory stitch for different gages of hosiery and for different deniers of yarn. Some years ago M. C. Miller pointed out in TEXTILE WORLD the possibility of knitting out-of-gage full-fashioned rayon hosiery; for example, use of a 45-gage machine to produce a 42-gage fabric. Although, as Mr. Miller mentioned, the cost of operating a finer-gage machine is higher than for a coarser-gage machine, at least one knitting mill has found it worthwhile to produce on 45-gage machines some styles of rayon hosiery which it sells as 42-gage.

Courtesy Union Mfg. Co.

All-rayon full-fashioned hosiery made on 42-gage machine; 75-den. bright viscose type rayon in leg, 100-den. in welt

Maintenance of proper tension on the yarn is of utmost importance. The amount of tension exerted on the yarn should be just enough to keep it taut without stretching it. The felt-type tension devices ordinarily employed in knitting silk hosiery are not satisfactory with rayon and should be replaced with floating-ring or metal-disk-type tension devices which can be weighted with small washers to give the correct, uniform tension necessary.

Unlike silk, rayon should be knit dry. If the knitting machines are equipped with moistening troughs, the water or emulsion should be removed and the felts replaced with smooth, glass, porcelain, or metal rods.

Operatives should be trained to use utmost care in handling cones of rayon to avoid damaging or soiling the yarn. The bottom of the cone should be tapered to prevent catching of the yarn; the "pineapple" cone is preferred in some mills. An open wind is desirable, and all knots should be on the top of the cones. To prevent the yarn from slipping under the cone and catching or jerking it when it is on the knitting machine, the cone should rest on a wad of cotton, rayon, or wool waste, or—even better—on a woolen bat washer made especially for this purpose.

It has been recommended that cones should be kept in conditioning cabinets or boxes at all times and that the knitter should take from the conditioning cabinet only those cones which he can use on the machine at one time. Some mills have found, however, that this precaution is unnecessary, provided the knitting room is properly air conditioned. For conditioning the knitting room, sectional units for each machine

have proved satisfactory, but some mills have obtained even better results by means of humidifying systems which maintain a constant and uniform humidity of 60 to 65% throughout the entire knitting room.

Last month the National Association of Hosiery Manufacturers issued a special bulletin, "Tips for Knitting Hosiery from Rayon Yarn." Among the precautions recommended in that bulletin to be taken when changing over from silk to rayon are the following: "(1) Snappers must be free from rough places and only a slight tension must be applied to the yarn—just enough to keep the yarn taut without stretching it. Examine the snapper spring for pitted places or rust spots. The spring must be smooth. The tension cups must be free from rough places. (2) The straps or webbing attached to the welt bar, and later to the welt rod, must be adjusted in a manner which will not exert too much pull on the hosiery fabric. Avoid using old and new straps on different sections of the same machine. Have the tension of the straps as nearly alike as possible. Variation in tension will result in different lengths. (3) The needle beard should be adjusted with sufficient clearance so that the yarn may enter or pass between the tip of the beard and the stem without an excessive amount of friction."

Another important precaution is to avoid mixing different types, brands, and lots of rayon in the same lot of hosiery; otherwise trouble may occur in knitting and is almost certain to show up in the finished hose, due to the different dyeing properties of different types and brands of rayon. Most hosiery manufacturers who have had experience in using rayon prefer to knit the stockings from bright rayon and to deluster the hosiery after dyeing, stating that use of pigmented rayon for knitting causes excessive wear of needles, guides, and other parts. In one style of rayon hosiery which has proved popular, 75-den. rayon is used for the leg and 100-den. for the welt. In a more serviceable stocking 100-den. yarn is used for the leg and 120-den. for the welt. Sheer rayon hosiery is being produced from yarns as fine as 50-den., but such stockings are not notable for their wearing qualities. Recently Nolde & Horst Co., Reading, Pa., has developed a new single-thickness welt, known as the Ribbon Edge Welt, which permits use of 150-den. rayon or 70/2 cotton yarn on 45-gage machines and somewhat coarser yarns on 42-gage machines. This welt is said to wear well and to assure the fit of the stocking. Plans have been made to license other companies to produce this welt.

Chief drawbacks to the use of ordinary rayon in full-fashioned hosiery have been its lack of strength and elasticity and its poor resistance to snagging. Now that necessity demands, improved throwing methods to overcome these disadvantages, in part at least, can be expected. Already, in fact, one such process has been announced under the name Ray de Chine. Hosiery yarns thrown by this process have more twist than is obtained by conventional methods. Stockings made from the high-twist yarn are said to have a silk-crepe-like appearance, and to have greater resistance to snagging and better wearing qualities than regular rayon hosiery. One of the accompanying illustrations shows a stocking with the upper part of the leg made from 75-den. viscose rayon with 15 t.p.i. and the lower part knitted from 75-den. Ray de Chine yarn having approximately 40 t.p.i. Ray de Chine yarn is similar to the high-twist rayon yarns employed in the weaving industry, but is thrown by special methods which made it suitable for use on full-fashioned hosiery machines.

Rayon full-fashioned stocking knit with 75-den. viscose rayon in upper part of leg and 75-den. Ray de Chine rayon with approximately 40 t.p.i. in lower part; insert, which is approximately natural size, shows how high twist results in greater sheerness and less luster

SCOURING AND DYEING of all-rayon full-fashioned hosiery should offer no particular difficulties, as the same methods which have been employed for seamless rayon hosiery can readily be adapted. Boiling-off and dyeing can be carried out by either the one-bath or the two-bath method. Some mills prefer the one-bath method for viscose rayon hosiery and the two-bath method for stockings made from cuprammonium rayon. There are many different scouring formulas which will yield good results; some dyers use soap; others use boil-off oil; and still others use one or another of the newer synthetic detergents. It is essential that the oils used for lubricating the yarn be completely removed during the boil-off and that the soap or other detergent be rinsed out before the finishing agents are applied. Pure, soft water is required in the dyehouse. Direct colors are employed almost exclusively for dyeing rayon hosiery. If the stockings are made with a cotton welt and/or heels or toes, dyes must be selected which will produce a uniform shade on both the cotton and the rayon. As a general rule, cuprammonium yarn dyes a much heavier shade than ordinary mercerized cotton. Fortunately, there are some dyes which produce a good union between cuprammonium and mercerized yarns and which are level dyeing.

Delustering and spot-proofing processes are carried out in the manner recommended by the manufacturers of the specific compounds used. Next the stockings are extracted, removed from the nets or bags in which they were placed before boiling-off and dyeing, and then are boarded.

As rayon is much weaker than silk when wet, the boarders must be particularly careful when pulling the stockings on the forms not to damage the yarn and make holes in the fabric. Some mills have found that the expanding types of inspection forms commonly used with silk hosiery are not suitable for use with rayon, as they are likely to cause a small hole to become larger.

Care is necessary also in the looping and finishing departments to prevent the stockings from becoming soiled or damaged. At Union Mfg. Co. it has been found that in the looping department use of racks for holding the stockings is preferable to boxes. That company, incidentally, has a slogan which might well be adopted by other mills which are embarking on the manufacture of rayon hosiery. The slogan is: "Never a stocking touches the floor."

ALL COTTON or lisle, full-fashioned hosiery has been produced in limited quantities for many years. Recently several attempts have been made to promote more extensive use of cotton stockings for active and spectator sports, heavy-duty street, and business wear. After two years of experimentation on women's cotton hosiery, the Bureau of

(*Continued on page* 91)

Is Modernization Wise at Present?

Yes, says this textile manufacturer, after analyzing question's pros and cons

THE AUTHOR of the accompanying article, a prominent textile manufacturer, raises a pertinent question—and answers it, conclusively. This same question has arisen in the minds of many industrialists who have tried to plot their future course through the current fog. Is it wise to modernize now? The real answer is: **Yes.** The author says: "I believe we will undergo a severe industrial change after this war: one that will result in the survival of the fittest." That's what happened after the last war. It will happen again. So modernize to keep fit!—**Editor.**

THIS ARTICLE is prompted because of a recent conversation with a very successful woolen manufacturer, one who has operated his plant profitably for many years. When questioned as to his thoughts regarding modernization under present conditions, this manufacturer replied that he did not favor expenditure of money under any circumstances, with conditions and uncertainties such as exist today.

It is not the writer's desire to criticize this man's judgment, but it is his desire to outline roughly a few thoughts both pro and con on this subject.

The first objection to modernization was given as that of inflation. I think we all wonder how this tremendous defense program can be financed without inflation. And when we do stop to wonder about this, we cannot help feel that inflation is probably here in some form and will undoubtedly increase. But let us assume inflation is rife. Then let us also assume two manufacturing plants: One has a large surplus in cash and with machinery and equipment which is fast becoming obsolete and is beginning to wear out. On the other hand, let us assume another mill that has little or no surplus, but ample working capital and is absolutely a well-equipped plant, a plant that is so thoroughly tooled that it is able to effect every manufacturing economy which its particular industry offers. Which of these two plants is in the healthier condition? It seems logical to believe that the plant having the large surplus is going to find it is tremendously depreciated in value just as naturally as the dollar will naturally have to depreciate in value, and at the same time that company will be losing out in the market because of its inability to compete and achieve the manufacturing economies that can be effected by its more fortunate competitors.

The second objection is the matter of taxes. Certainly taxes are something to be feared and at the same time appreciated. Our national debt has always been paid, and if we assume that it will always be paid, we cannot expect anything but more severe taxation. But here again taxes are clearly an expense item that has to be added to the cost of manufacturing; therefore it is difficult to understand how any plant that is not properly equipped and tooled can withstand this additional expense. Then let us assume that again a plant maintains a large surplus. That surplus will undoubtedly be more vulnerable to taxation than will a plant whose resources are in its physical set-up making it possible to earn profits and pay dividends.

A third objection to be considered is the outcome of the war. Some believe Hitler will win. For the sake of ridiculous argument, let us assume that Hitler does win. In every instance where he has conquered a nation, he has confiscated every industry and has eliminated those industries which he considers uneconomical, and by uneconomical he means those industries which are not able to earn a profit. So it seems we can assume the worst situation—a victory for Hitler—and even in that case a well-equipped plant is more apt to survive than is a poorly equipped one. I think the war, with all of its horrors, has magnified and brought to our attention one fact which we cannot help but appreciate, and that is the accomplishment that can be accredited to improved mechanization. Hitler's entire success has been based on superior mechanized forces.

A fourth objection is the depression that will certainly follow the war. Let's assume that after this war is over we will have a more severe depression than the world has ever known. If we agree with the economists, there is no such thing as over-production, every depression is brought about by under-consumption. In other words, there is always a need for the output of industry but the purchasing power of the public is not always able to maintain full-time industrial operations. If this is true, is it not reasonable to believe that the plant which is able to manufacture at the lowest unit cost will be the plant that will get its share of the business that will be available in such depressed times?

IF I MAY PROPHESY, I cannot help believe that we will undergo a severe industrial change after this war: one that will result in the survival of the fittest. Uneconomic organizations will pass out of the picture and only those well-managed and well-equipped plants will be able to keep their wheels turning.

At the present time, many manufacturers with ingenuity and vision, particularly textile manufacturers, who are good stylers and merchandisers, are able to earn a profit with poorly equipped plants. But this situation may be likened to the automotive industry about 18 years ago. We can all remember the names of many successful automobile manufacturers and most of them made good automobiles, but they gradually dropped out of the race one by one and I conscientiously believe that the reason for those individual failures was simply that they were not able to keep pace with the progress that was being exemplified by Henry Ford, Walter Chrysler and General Motors.

Fabrics For National Defense

Rayon and woolen lining cloths, worsted serge, jute socks among new Army calls

MORE THAN 3,000,000 YD. of a 12 oz., olive-drab, woven wool lining cloth have recently been called for by the Army Quartermaster Corps. The fabric is required to conform to Tentative Specification P.Q.D. No. 59, issued May 9, 1941. Suggested manufacturing data on this are given below, together with an abstract of the specification and exceptions included in late bid invitations.

Stock—A blend, as follows:

not under 60% wool
not over 10% wool noils
not over 10% reworked wool
} not lower than 60s grade
not over 20% cotton.

Yarns—Single, spun on woolen system, same yarn for both warp and filling. [Although not stated in the specification, use of 5.6 typp (3½ run, 18⅔ cut) yarn for both warp and filling, with the ends and picks detailed below, will yield a fabric of approximately correct weight. It is important that careful attention be given to the picking operation, and that the cotton used is well blended throughout the mix. The cotton should not be oiled during picking.]

Physical Requirements — Weave, plain; finished width, not less than 56 in., exclusive of selvages; minimum finished weight, per linear yard, 12 oz.; minimum ends and picks per inch, finished, 38x32; minimum breaking strength of finished fabric, 1x1x3 grab test—warpwise, 42 lb., fillingwise, 32 lb. [Although not stated in the specification, using the yarns listed above, 2,132 warp ends (plus selvage) reeded 2 ends per dent in a 16-dent reed 68 in. wide, and 31 picks per in. at the loom—with the finishing data outlined below—should yield approximately correct finished fabric.]

Color—Olive drab, piece- or stock-dyed, to match standard sample. Must show good fastness to perspiration and crocking, and fair fastness to laundering.

Finish—Thoroughly scoured, well fulled and felted; face evenly but lightly sheared, back unsheared; well pressed and/or decated; firm handle; use of finishing or loading to increase weight or strength prohibited. Shrinkage in sponging, not over 6% warpwise, not to less than 54 in. fillingwise. 50 yd. pieces, put up full width on rolls. [Although not stated in the specification, it is recommended that the fabric be fulled down to 56 in. in width, and dried at 57½-58 in.]

JUTE SOCKS for soldiers are a new item on the national-defense horizon. They are covered by Specification P.Q.D. No. 58, issued May 7, 1941, from which the following is abstracted:

Yarn—Made from good quality, soft, strong, long, unbleached jute fiber; containing a soft knitting twist of approximately 3-4 t.p.i.; 2.4 cut (20 lb.) or 3 cut (16 lb.) in size. Looping yarn; not less than 3-ply unbleached cotton. Rubber: ⅛ in. flat rubber.

Construction — Seamless, circular-knit; maximum number of wales at widest point, 54; minimum machine diameter, 4½ in.; minimum courses per in., 5. Plain stitch used in leg, foot, heel, and toe; top overlocked with 3-thread stitch having not less than 14 stitches per in.; ⅛ in. flat rubber strip laid in with overlock stitch. Length of leg, from extreme top to lower edge of heel, 10 in. Sizes: small, 11 in.; medium, 12 in.; large, 13 in.; extra large, 14 in. Acceptable tolerance in foot length, +½ in. Minimum weight per doz. pr. (in lb.): small, 2¾; medium, 3; large, 3¼; extra large, 3½.

Finish—Boarded, without stretching, to proper shape and size; well matched and paired.

RAYON LINING CLOTH has been called for by the Army in bid invitations issued within the last few weeks. Specification 7-19, promulgated July 10, 1941, covers the cloth; essential requirements are detailed below:

Yarn—Warp and filling, viscose-process rayon, 150 den., not under 40 fil.

Physical Requirements—Weave, five-harness warp satin; minimum finished weight per sq.yd., 5 oz.; minimum ends and picks per inch, finished, 182x70; minimum breaking strength of finished fabric, 1x1x3 grab test, 140x60 lb.; width, 40-41 in.

Color—As specified in invitation to bid—current invitations call for O.D.; use of sulphur dyes prohibited. Color must have good fastness to tests for crocking, perspiration, and dry cleaning.

Finish—Cloth shall have what is known as "natural finish." Use of finishing or loading materials to increase weight or breaking strength is prohibited.

A NEW WORSTED SERGE of 10½ oz. weight is described in Tentative Specification P.Q.D. No. 31. Essential requirements are briefed in the following paragraphs; suggestions regarding fabric construction and manufacture are also included.

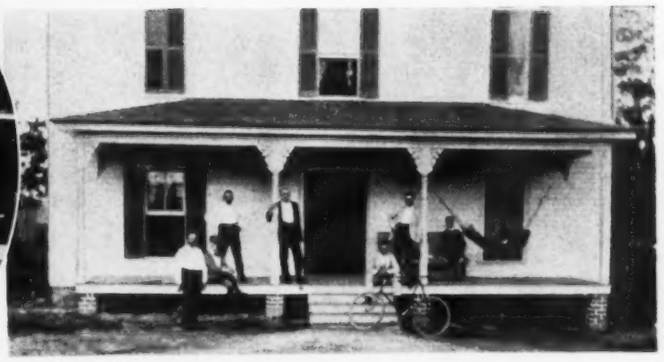
Stock—Fleece and or pulled wool not lower than 64s grade.

Yarns—Two-ply worsted, same yarn for both warp and filling. [Although not stated in the specification, use of 2/52s worsted yarn for both warp and filling, with ends and picks as detailed below, should yield a fabric of approximately correct weight.]

Physical Requirements—Weave, two-up two-down right-hand twill; finished width, shrunk, not less than 56 in., exclusive of selvage; minimum finished weight, per linear yard, 10½ oz.; minimum ends and picks per inch, finished 82x72; minimum breaking strength of finished fabric, 1x1x3 grab test—warpwise, 65 lb., fillingwise, 60 lb. (Although not stated in the specification, using yarns listed above, 4,600 ends (plus selvage) reeded 4 ends per dent in a 16¼-dent reed 71 in. wide, and 70 picks per in. at the loom—with the finishing data given below—should yield approximately correct finished cloth.)

Color—Olive-drab, produced by blending olive and white wools; must show good fastness to weather.

Finish—Thoroughly scoured and lightly fulled; face clear, closely sheared, well pressed; firm handle. Use of finishing or loading materials to increase weight or strength prohibited. Shrinkage in sponging, not over 5% warpwise, not to less than 56 in. fillingwise, 50 yd. pieces, put up full width on rolls.



(*Left*) Proximity, then 12 years old, was represented at Greensboro's Centennial in 1908 by this truck on which a gasoline driven loom wove denim. (*Right*) The boarding house known as "Waldorf-Astoria" to the Cone officials who lived in it while the original Proximity Unit was being built

50 Years of Cone's "Home-Made Job"

Company started in 1891, was built up largely by training from within

"THERE WAS NOTHING to begin with but proximity to the cotton fields" is the caption on the end paper of the book just published by Cone Export & Commission Co. to celebrate its 50th anniversary. Those who know the background of this company and of the Proximity Mfg. Co., built and operated by the Cones, will appreciate its significance.

The Cone Export & Commission Co. was founded in 1891 by two brothers, Moses and Ceasar Cone, who had been in the wholesale grocery business. At that time there were about 50 cotton mills in the South and their production was about 95% cotton plaids. There was no finishing done in the South. The Cones decided there was no reason why the South should make nothing but plaids, nor why the North should have a monopoly of the finishing business. So they set about to line up those 50-odd southern mills to distribute their product through a central selling agency and about 90% of them joined the fold.

Before a year passed, many of the mills were doing all kinds of things they had never dreamed of before. They found themselves turning out chambrays, cheviots, suitings and outing flannels—and before they knew it they were making ginghams, tickings and canton flannels.

The selling agency had hardly been started before Moses and Ceasar Cone began to think of the mill business. A plan to open two mills in Greensboro, formulated in 1893, was delayed by the panic that year, but the brothers did build a small plant called the Southern Finishing & Warehouse Co., and thus got into the finishing end. Two years later ground was broken on the original unit of Proximity Mfg. Co., and in 1896 the first denims came off the looms.

In 1899 the Cones started a flannel mill and the record states that it "was named Revolution Cotton Mills because it was to be so modern that it would revolutionize the manufacture of cotton in the South." By 1909 the flannel business was considered big enough to justify the first bleachery at Revolution. But the year before the bleachery was opened Moses Cone died.

By 1902, the original Proximity unit of 250 denim looms had expanded to 1,000, and that year plans were made to build the White Oak Mill, now the largest denim mill in the world. From 270 looms when it opened in 1905, it has grown to its present 5,000 looms. In 1903 the Cones entered gingham manufacture, starting Cliffside Mills, in partnership with an old customer, Raleigh Haynes. In 1912, the first printing machine was set up in Greensboro, the embryonic beginning of the present great Proximity Print Works.

SUBSEQUENT CORPORATE DEVELOPMENTS of the Cone Export & Commission Co. and the mills it represents are known to the entire textile industry. But more vital than the actual expansion of the company has been its pioneering impulse. The Cones never ceased pounding away at the mills they represented to diversify, to follow new trends, to become self-sufficient, and to refuse to believe that "it couldn't be done" in the South. The Cones were everywhere, doing just about everything: Starting their own mills, working with other mills in developing new products and new methods, starting new selling offices all over the country, taking an active part in Greensboro affairs, founding schools and kindergartens, planning Y.M.C.A. units, building up a technical staff at the mills and the merchandising organization in New York. The Cone job has been largely home-made. Men have been trained within the organization to fill the new positions created by its steady onward march. From the officers of the company down through department heads to junior executives, it is surprising how many ex-office boys, stenographers, stock boys, and loom tenders, you find.

The present officers of the Cone Export & Commission Co. include Saul F. Dribben, president; C. M. Guggenheimer, 1st vice-president; Herman Cone, 2nd vice-president; Alvah Rydstrom, 3rd vice-president; Benjamin Cone, treasurer; Lacy H. Sellars, secretary; Ceasar Cone, assistant treasurer; Lewis M. Heflin, assistant secretary. Bernard M. Cone, chairman of the board of Proximity, is also a director of Cone Export & Commission Co.

View of the swimming pool at Langdale

Five Textile Towns Playing

Recreational program of West Point Mfg. includes all from kindergarten to old age

By FLOYD TILLERY

IN EARLY MARCH of this year West Point Mfg. Co. inaugurated a community recreation program to serve the 25,000 people in the five interlocked cotton-textile towns of Riverview, Fairfax, Langdale, Shawmut, and Lanett, Alabama. Today, these five towns—morning, afternoon and night—are full of men, women and children, playing. The program is so embracing in its activities that it offers recreational outlet for practically every human interest—from contract bridge to baseball.

Already splendidly equipped with modern gymnasium, recreational halls, playgrounds and swimming pools, "The Valley," as this southern textile center is popularly known, is now utilizing to the utmost these and scores of other facilities that have been provided for in connection with the newly organized program. A coordinator with successful experience in managing a New England community center, together with six trained assistants, has been employed to plan and supervise a schedule that seems unlimited in its possibilities for wide usefulness.

The immediate and enthusiastic response of the company's 10,000 employees and their families was to be expected because of their keen interest in the major competitive sports for the last 25 years, when the Chattahoochee Baseball League was first organized. This league has contributed many outstanding players to the Southern Association and to both of the Big Leagues. Southern sports writers have said of The Valley that it is "the most sports-minded community this side of Brooklyn."

But it took the new Community Recreation program to prove to the fans that the bleachers and sidelines are as full of people with pent-up energy wanting to be released through play as are the diamonds, the indoor courts and the gridirons with their picked teams. Today, instead of one baseball and one softball team in each town, there are numbers; and instead of just the husky, skilled athletes playing, there are thousands of men-past-forty, middle-age women, young people, high-school boys and girls, and little children participating.

To mention some of the current activities: baseball, softball, volleyball, basketball, tennis, swimming, badminton, paddle tennis, box hockey, shuffleboard, ping pong, pushball, archery, bowling, croquet, horseshoes, dominoes and checkers; bicycle clubs, bridge clubs, sewing clubs, crafts clubs, glee clubs, camera clubs, literary clubs, and dancing clubs. In addition to the already existing fields and gymnasiums, there have been constructed large-area courts, totlots, and many specialized playgrounds. Each town has from two to four brilliantly lighted spots where various types of games with hundreds participating go on every evening from six until ten.

The schedule of activities calls for organized teams in all departments of the six mills, with teams participating three times each week in inter-city loop play. In one town there are more than 200 men and 100 women employees in the mills enjoying softball.

One of the five bicycle clubs (Lanett) starts on a hike with 50 youngsters in charge of a traffic officer

Play Days, Field Days, with hundreds of children taking part; bicycle hikes under the supervision of a traffic officer; treasure hunts for all ages; picnics and barbecues; nature-study trips into the woods: these are some of the group-events planned week after week just for general fun.

In progress during the warmer months is a Learn-to-Swim campaign. Transportation is furnished to and from the swimming pools in the community for all youngsters who obtain permit-cards from their parents. Hundreds of boys and girls are being taught both swimming and life-saving by experts and life guards.

Recently a marble tournament was held in each town, with a total of 438 entries. The two finalists competed in the State tourney held in Atlanta.

The musical program is proving to be one of the most popular on the agenda of the Department of Community Recreation. With a paid director in charge, every musical organization—church choirs, school glee clubs, independent quartets, bands and orchestras—is being correlated into unified groups, town by town. Rehearsals are held regularly for the rhythm and kiddy bands, glee clubs and other musical units. In June the five-town unified groups assembled for a Patriotic Musical Festival, in which fully 1,500 participated, with 10,000 people attending.

One of the most unusual outgrowths of this recreation program is the open-air union prayer service that is held every Wednesday evening in Shawmut. Here the sponsoring denominations gather at the main softball field—sitting in the bleachers, in parked automobiles and on the green lawns beneath shade trees—where a program of song and praise is presented under the huge arc lights with loudspeakers carrying the messages to every corner of the park. Then, following benediction, a softball game is played by teams selected from the congregation. Many of those present say they are "enjoying prayer-meeting for the first time in their lives."

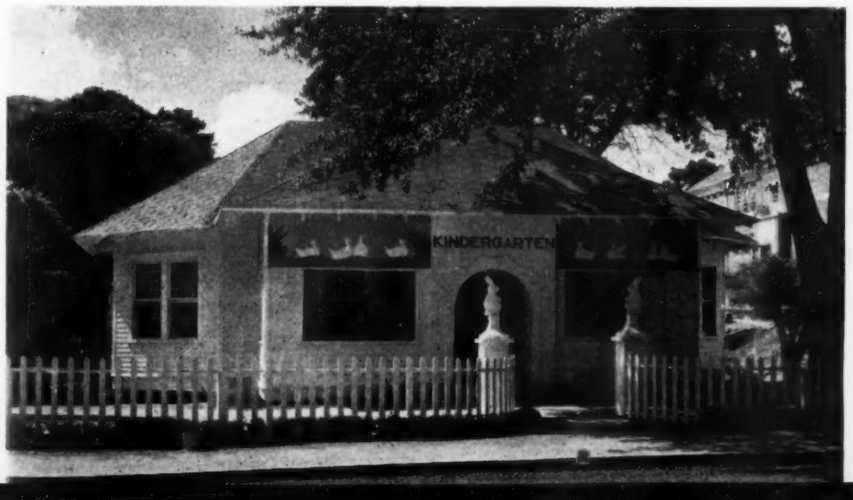
At these open-air gatherings one finds scattered through the large park, the mill executives, the office workers, the employees, the merchants of the town, the taxi-drivers, the village "loafers"—men, women, and children of Shawmut, all worshiping, visiting and playing in friendly, neighborly fashion.

Go into any one of the six Valley mills during working hours and you will hear the employees and the overseers talking of the games played the day before, of the contests coming up as soon as this or that shift is over.

Although the program is not yet a year old, its marked influence upon the health and happiness of the community is clearly noticeable.

Its coordinator is Robert A. Turner, formerly of Fair Lawn, N. J.; the community directors are Rex Hooten, Riverview; Sam Mason, Fairfax; Leon Shellnut, Langdale; W. O. Kent, Shawmut; Glen Delafield and Mrs. Judy Caruthers, Lanett. All these directors are college graduates, former athletes, with wide experience in directing sports and playground activities.

Group of participants at the Valley-Wide Music Festival held July 2 (five hundred took part; 5000 attended)



The younger children are given their first training in kindergartens such as the one shown at left

Sampling and Testing Wool

New method for making grease-content tests holds interesting possibilities

By HERBERT J. WOLLNER
Consulting Chemist
U. S. Treasury Department

WOOL-IN-THE-GREASE, up to the present has remained one of the few important industrial raw materials enjoying the questionable distinction of not being subject to laboratory tests. Differing from other types of textile fibers in the method by which large stocks are collected, it has not been a simple matter for this product to be adapted to the orthodox procedures of sampling and testing. Derived, very frequently, from heterogeneous sources, thus presenting a characteristic lack of uniformity, appraisal has been possible only by visual inspection and handling by experts.

When one considers that consumption of wool-in-the-grease in this country is at present of the order of 1,000,000,000 lb. yearly, it is startling to consider that it has not hitherto been subject to laboratory test to determine its purity. There have, of course, been sound technical reasons why this has been so. Unlike ores or similar raw materials, it has not been feasible to take a large quantity of this raw material and mix it to obtain a small representative laboratory sample. Since the wool is frequently tightly packed in bales or bags ranging from 250 to over 1,000 lb. in weight, with a high degree of non-uniformity existing not only among the bales but also within a bale, it is understandable why this should have been so.

The Bureau of Customs of the U. S. Treasury Department, being responsible under the Tariff Act of 1930 for the collection of duties on imported wools, has been investigating this problem for a number of years. The duty applied to a particular importation is directly proportional to the quantity of clean wool contained therein, and the Bureau of Customs exercises every vigilance to the end that all duties are collected on the same basis at all ports of entry. The investigation of this problem has now been completed and has, as its final result, the establishment of a wool testing laboratory in the port of Boston to which samples of all imported dutiable wools will be sent.

The laboratory in Boston, which consists of an assembly of equipment especially designed for the testing of raw wool, is staffed by personnel expert in this field. It is the first laboratory of its kind so equipped and devoted exclusively to this undertaking. A sample entering the laboratory in the morning can be finished by the next day,

Samples are drawn from bales by this core-boring tool (Photo by Dr. Frederick McGregor for Corpus Christi Caller-Times)

and the capacity of the laboratory, which is now being expanded, will eventually be 100 samples tested in 24 hr.

IT WAS EARLY RECOGNIZED that the first step to be taken before developing a method for determination of the clean content of raw wool was the establishing of a definition of clean wool acceptable as a basis for such an analysis. The definition tentatively adopted is as follows: "That portion of the wool or hair which consists exclusively of wool or hair free of all vegetable and other foreign material and containing 12% by weight of moisture and 1½% by weight of material removable from the wool or hair by extractions with alcohol, and having an ash content not exceeding ½ of 1% by weight."

The sampling procedure was next developed. It was necessary to establish a theoretical background, and a practical technique, for obtaining a relatively small sample controllably representative of a large quantity of wool. The variation of foreign substances in raw wool, in the condition as imported, was carefully studied, and the results of these studies were interpreted and applied in terms of some practical method for obtaining such a sample.

The sampling procedure resulting from these studies involves the use of a simple electrically motored core-boring tool which withdraws from the bale a quantity of wool weighing approximately ¼ lb. The tool consists of a standard portable electric drill motor. In lieu of the usual chuck, it has a bayonet-type driving head to which is affixed an 18-in. stainless-steel tube 2 in. in diameter. The other end of this tube has provision for holding a removable circular scalloped blade.

The number of cores taken from a lot of wool, and the depth of penetration, is dependent on the statistical and other characteristics of the merchandise. In an importation which will run between 100 to 300 bales, a core may be taken from each bale. In larger importations it is generally not necessary to core every bale unless abnormal conditions require it. Where the bales are fewer than 100 in number, the cores are either drilled to a greater depth, or more than one core is drawn per bale.

The cores so drawn are collected in special containers designed to protect them from any change in moisture over extended periods of time. Such samples will weigh from 20 lb. up, of which approximately half will be wool, the balance being impurities.

The third step consisted in developing a suitable method for testing wool samples in the laboratory. It was considered essential that the laboratory technique should not only provide a precise figure for the clean content of a sample of wool, but should also do so rapidly. The laboratory staff and equipment now in Boston has been planned with this objective in mind.

IN THE LABORATORY the first step is essentially the same as the first step in

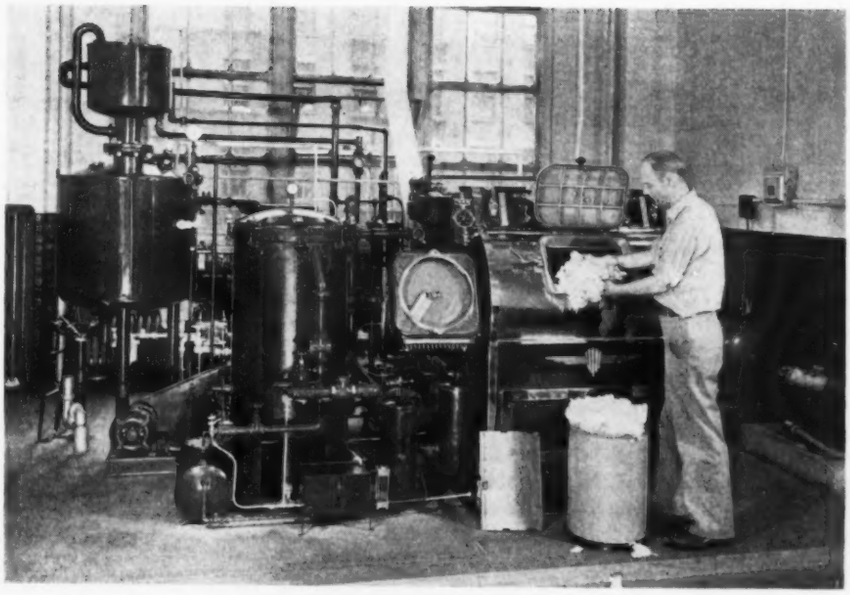
conducting a test on any other large bulk material. An effort is made to reduce the size of the sample to one which can conveniently be tested on a laboratory scale. This is accomplished by weighing the sample, carefully removing most of the impurities by means of a dry-cleaning operation, dusting, and thoroughly mixing the degreased wool by means of a mixing picker and duster and, finally, taking one or more test portions under carefully controlled conditions. These test portions are then scoured, rinsed, and dried.

The degreasing operation is conducted in a standard commercial dry-cleaning machine which has been redesigned to prevent any loss of wool fibers, and to handle properly the large quantity of grease and other impurities removed from the wool. The solvent employed is trichlorethylene, and the unit is completely inclosed. To expedite the process, all operations are automatically controlled. These operations consist of several washings with the solvent, followed by extraction, drying, solvent recovery, and deodorizing of the wool. On completion of the cycle the machine automatically stops and is ready for discharge and reloading.

For the purpose of opening, mixing, and dusting the degreased wool, a standard 24-in. mixing picker is used, along with a continuously operating cone-type duster. The wool leaving the duster at this time is highly uniform. Test portions can be removed by an automatic sampler at this stage, or the wool can be permitted to accumulate in a cage from which test portions, hand drawn, can be taken. The test portions, as well as the bulk of the dusted wool, are, of course, weighed in order to establish the relationship between the weight of the test portion and its corresponding grease weight. These test portions average about 100 grams in weight, and at least three such portions are taken for test.

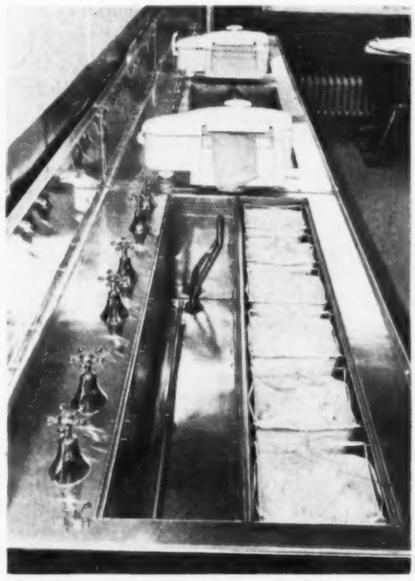
THE SCOURING is accomplished by placing the wool in cotton net bags which are then suspended in a warm dilute soap solution, carefully manipulated by hand, and then passed through an electrically operated laundry wringer. This process is repeated in a second soap bath, and the wool finally is rinsed in running water. This scouring process completely removes all remaining impurities from most grades of imported wool. Occasionally a more prolonged scouring treatment is required to remove certain types of persistent impurities. During this scouring procedure the grosser vegetable impurities are removed by hand.

The drying operation is conducted under conditions which provide the oven-dry weight. This is then corrected to conform to the standard moisture content.



Degreasing of the wool is conducted in a standard dry-cleaning machine, redesigned for this purpose

The wool is next further corrected for such residual vegetable matter as it may still contain, which is determined by a newly developed comparison method of high accuracy. This consists of placing the cleansed wool in a large glass-bottomed container having the same refractive index as wool. A special mixture of fluids is poured over the wool sample, and as the wool is immersed in this fluid it becomes transparent, leaving superfluous vegetable matter seemingly suspended in the colorless liquid. The foreign vegetable matter is then photographed and a transparency developed. This transparency, which portrays every trace of vegetable matter is then compared with standard photographic slides. The dried and scoured wool is also tested for its content of ash and extractive material by standard procedures and an additional correction applied. Thus the final figure reported represents the percent of the original sample which conforms to the definition of clean wool.



Scouring is accomplished by placing wool samples in cotton net bags, suspending these in a warm dilute soap solution, carefully manipulating them by hand, and passing the washed wool through an electric wringer

Inasmuch as the core-boring machine which penetrates the bales actually cuts a core of wool therefrom by means of a serrated blade, the question arises as to whether extensive damage to the remaining fibers has been occasioned. A careful mathematical study has been made to ascertain the possible extent of such damage. Results of this study, showing the cumulative weights of cut fibers up to various lengths that remain behind in a bale after a sampling tool has removed a core of wool 2 in. in diameter, weighing ¼ lb., indicate clearly that the quantities of short fibers thus created are too small to introduce any interfering effect in subsequent manufacturing operations.

Research along the lines of improving methods for testing wool is still continuing, effort being made not only further to improve the assured accuracies which can now be achieved, but to simplify methods employed, so that the establishing of the clean content of wool by laboratory technique may eventually have the widest application.

More Textiles Go Under Ceilings

Rayon gray goods covered by OPACS; fine cottons listed; carded yarn is next

CEILINGS OVER TEXTILES kept OPACS as well as the industry busy through late August. On Aug. 22 principal types of fine cotton gray goods were added to the schedule of gray goods maxima. On Aug. 24 important types of rayon gray goods were covered with a ceiling. Burlap ceilings were also set, although the primary market in Calcutta is quite outside OPAC's control unless British and Indian officials set fit to cooperate. Carded cotton yarn maxima were expected right after Labor Day. And the end is probably not yet.

Fine cotton goods prices were promulgated as an amendment to Price Schedule No. 11 covering cotton gray goods (print cloths, sheetings, etc.). This extension covers types of combed broadcloth, combed lawns, dimities and voiles. Inclusion of other fabric types is in prospect for early September as Henderson's bureau confers with the Cotton-Textile Advisory Panel which was created late in July. The Aug. 22 list puts 37 in. 144x76 broadcloth at 15⅞¢. Typical of the combed lawns are the following: 36 in. 76x72, 9¾¢; 40 in. 76x72, 10¼¢; 40 in. 96x100, 13½¢; 45 in. 88x80, 12⅞¢. Dimity prices are based on 10¾¢ for 36 in. 96x68, and 12⅝¢ for 36½ in. 116x76. One voile, 39 in 60x52, slack, is listed at 9¢. Prices for seconds and shorts of the cotton goods listed by OPACS shall not sell in excess of 95% of the ceiling prices.

On the docket for early inclusion are piques, sateens, pongees, marquisettes, etc. It has been stated by authorities that all principal fabric types will be brought under maximum price schedules as soon as practicable. An industry committee met in Washington Sept. 9.

Discussion continues in the cotton goods trade as to better ways of getting at what OPACS is trying to do with its "ceilings." A basis "over cotton" is urged by some merchants, but without much hope of success. Wholesalers of gray goods are going ahead with sales in excess of ceiling basis on the grounds that OPACS must take a reasonable attitude on the costs of distribution which they have to add to goods acquired at a full ceiling basis.

RAYON PRICE CEILINGS are reported to be about 10% under the nominal first-hand market, but 20% under the second hand market from which most of recent transactions have been coming. Mills have been sold up on viscose goods lately, but a few acetate numbers on which business was being done just before OPACS action may have to be readjusted. Rayon taffetas were said to be 1 to 2¢ a yard under first hands, but 3¼ to 4¢ under second hands. Rayon satins were 2¢ under first hands and 4 to 4½¢ under second hands. In spun-rayons the ceiling is 1¢ under nominal first-hand prices on flakes, but 6¢ under the actual second-hand trading basis; on challis, 1¢ below first hands, but 8½¢ under second hands. On acetate fabrics, ceilings are 1 to 5½¢ under recent first hand quotations.

OPACS proposes appropriate action if finished goods prices are not brought into line with its gray goods ceiling. Henderson is quoted as saying that second hand sales at exorbitant prices have been one of the most disturbing features of the recent market. As a matter of fact, large producers of rayon gray goods had recently undertaken a voluntary restraint on price advances. Their action on this stands them in good stead now, and there are fewer and smaller revisions to be made to business on the books than might have been expected. They had virtually withdrawn from the market a week before OPACS issued its list in anticipation of the ceilings. OPACS will watch prices of unlisted rayon gray goods particularly, and unless they show a normal relationship to the listed items, the ceiling list will be expanded to include the recalcitrants. OPACS states that it now has a ceiling over most of the primary textiles required for women's dresses, men's shirts, underwear, coat and suit linings, handkerchiefs, sheetings and many other consumer items.

Among the rayon gray goods maxima the following are typical (previous mill prices in parenthesis): viscose twill, 38 in. 112x68, 20c. (22c.); viscose taffeta, 39 in. 96x44, 15½c. (17½c.); acetate taffeta, 39 in. 110x48, 17¼c. (19¼c.); pigment taffeta, 43½ in. 92x64, 18½c. (20½c.); viscose satin, 40 in. 140x56, 21c. (23c.); spun rayon, 41 in. 63x38 10% blend, 15c. (17½c.); spun rayon, 40½ in. 68x62 challis 13½c. (14½c.); combination two-ply alpaca 48 in. 44x36, 30c. (30c.); acetate satin, 42 in. 200x72, 25½c. (26½c.); French crepe, 43½ in. 150x94, 28½c. (28c.); acetate warp crepe, 45 in. 110x64, 27c. (27½c.); cuprammonium triple shear, 46 in. 104x72, 27c. (27¼c.); viscose shear, 46 in. 104x72, 25½c. (27¼c.)

Maufacturers of rayon gray goods must report monthly to OPACS all unlisted fabrics made in excess of 25,000 yd. and the highest price thereon; they (and buyers) must also submit monthly sworn statements beginning on or before Oct. 10, that all purchases or sales were made in compliance with the schedule —identified as price schedule No. 23.

CARDED YARN CEILINGS are expected any day and will doubtless be announced before this issue of TEXTILE WORLD reaches its readers. An abnormal situation had existed in carded yarns in late August as prices advanced steadily until some counts actually went to higher levels than the maxima under which the combed-yarn industry is operating for similar counts. For example, 30s/2 combed are set by OPACS at 49c., while the same count carded sold at 50c. around Aug. 19. The forthcoming carded yarn ceiling will be retroactive and affect many of the over-enthusiastic sales made in the last two weeks of August. Because of the large numbers of small mills involved, OPACS is being urged to consider the practical application of its dictum before uttering same.

The yarn industry committee met with OPACS Sept. 8. It was decided that the prices would reestablish normal differentials between carded and combed.

Congress planned to freeze cotton holdings to sustain the high levels current on cotton in late July. However, the bill, when passed, was vetoed by the President. Cotton receded for a time but recovered, and has lately touched 11-year high at 18c.

After OPACS set a burlap ceiling, the replacement figure quoted on the Calcutta market continued to rise until in late August it was no longer possible for importers to buy ahead without facing an immediate loss if the goods were to be sold in the United States. OPACS set 10.60c. as the maximum price on 40 in. 10 oz. goods for delivery after Jan. 1, 1942. Calcutta on Aug. 25 had risen to 10.65 on that construction.

Ultraviolet Ends Mildew Problem

Sterilamps installed on storage tanks in Masland plant stop spoilage of gum

By W. O. JAMES *
and T. R. PORTER**

MILDEW HAS BEEN A PROBLEM in the textile industry for many years; and one of the chief ways of controlling this in certain types of fabrics has been by the use of chemicals applied during the manufacture or finishing. It has been well known that cloth and other textiles exposed to bright sunlight have not been subjected to the ravages of mildew, but that the same cloth in humid atmospheres and not exposed to sunlight has suffered. This is not surprising when it is realized that mildew is a type of mold, the spores of which can be found in practically all indoor and outdoor air. These spores grow like a plant on any moist surface and spread like moss over a moistened rock. However, mold spores and bacteria cannot live in direct sunlight by reason of the fact that the lower wave lengths of ultraviolet radiation produced by the sun have bactericidal properties; in other words, such radiation will kill bacteria, mold, and other micro-organisms.

Recently an artificial source of bactericidal radiation was developed in the laboratories of Westinghouse Electric & Mfg. Co. This device, which is known as the Sterilamp, produces over 80% of its energy in the region most effective in destroying bacteria and molds. In the food field, fresh meat, fish, baked goods, vegetables, etc., are being protected from spoilage caused by mold and bacteria in storage refrigerators by irradiating the storage space with radiation produced by the Sterilamp. Hospitals are using the same lamp to sterilize the air in operating rooms and in nurseries to combat the dangers of cross infection from air-borne bacteria.

One of the first applications of the sterilamp in the textile field is in the plant of C. H. Masland & Sons Co., Inc., Carlisle, Pa. For years this company had had a serious problem in preventing fermentation of karaya gum in large storage tanks. Karaya gum, when mixed with water, is used in finishing rugs. The gum comes from the East Indies, where it is exuded from trees similarly to the way in which rubber is secured. After a crude refining process, it becomes a whitish powder. This powder is contaminated with various micro-organisms, a good many of which are probably pathogenic because of the unsanitary conditions under which the gum is prepared and handled by the natives.

Two tanks are used in the Masland plant for the preparation and storage of the gum. It is necessary to keep in storage rather large quantities of the gum and water mixture so that it is in readiness for use at all times. Because of the high bacteria count in the gum, the problem of keeping it in a perfect state has been a serious one. Spoilage in the past was due to a fermentation of the surface of the mixture in the tank. The mixture would sometimes "sour" and be unfit for use. The insides of the tanks would become coated with thick layers, which would have to be scraped off more or less frequently.

VARIOUS METHODS have been tried in the past at the Masland plant in an endeavor to correct this condition. Several years ago, it was found that the addition of phenol to the mixture helped considerably in keeping down spoilage.

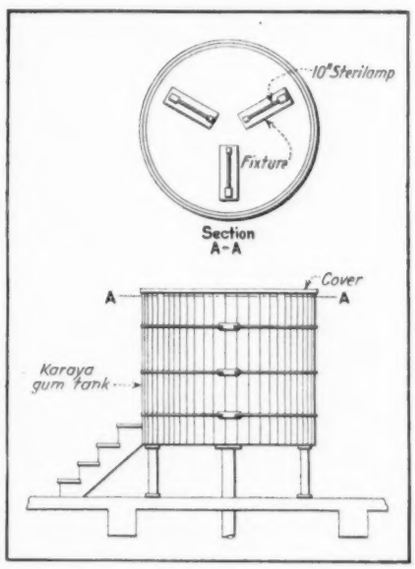


Diagram showing installation of Sterilamps on gum storage tanks in plant of C. H. Masland & Sons Co.

While phenol was a big help, it was not fool-proof and it had the disadvantage of changing the viscosity of the mixture to a point where the gum lost some of its original properties for which it is used.

Mr. C. H. Masland, 2d, happened to mention this problem at the Franklin Institute, where he is an active member of the board of directors. James Lee, of the Institute staff, suggested the use of Westinghouse Sterilamps. As an experiment, one tank was equipped with Sterilamps mounted above the gum in the tank. From the start, a marked improvement was noticed in the condition of the karaya gum tank. At first, the phenol was still added, rather than to run the risk of spoiling a full tank. After a few days, the phenol was abandoned completely and has not been used since. Later the other tank was equipped with Sterilamps. As the installation has been in since April, 1940, the Masland Co. feels certain the problem has been solved. The accompanying diagram shows the way in which the installation was made on the gum storage tanks in the Masland plant.

To give some indication of the positive action of the lamps, it is interesting to note that several months ago, one of the night watchmen in the plant pulled out the main lighting switch in the building where the karaya gum tanks are housed, thereby turning out the Sterilamps. The next morning, when workmen opened the gum tanks, it was found that the gum had fermented and the full tanks were a complete loss.

Cost of operation on this basis of 20 watts per lamp is approximately $15 a year for the six lamps. The complete cost including installation was less than $200. Mr. Masland states that it is difficult to estimate how much the Sterilamps have saved his company in dollars and cents because no accurate record was kept in the past on spoiled tanks full of gum. However, since the cost of the Sterilamp installation is less than that of one tank of karaya gum, it is apparent that the Sterilamps were a good investment. It is believed that there are numerous other applications for these lamps in the textile industry where mildew due to bacteria present in raw materials or bacterial contamination in the air is a problem.

*Philadelphia Office, Westinghouse Electric & Mfg. Co.

**Special Products Division, Lamp Division, Westinghouse Electric & Mfg. Co.

2c. a Lb.—$8,000 Weekly

Saved by consolidating and modernizing Henderson and Harriet cotton mills

A SAVING of approximately 2c. a lb., or $8,000 per week, on a weekly production capacity of 400,000 lb. of yarn, 3s to 30s carded, single and ply, has been effected by means of a two-year modernization and consolidation program at Henderson and Harriet Cotton Mills, Henderson, N. C.

In 1937, approximately 40 years after the company commenced operations, the Cooper family, which has operated it since the beginning, decided to consider ways and means of revamping the several plants to meet modern conditions. They called in Whitin engineers, who, in cooperation with the management, made a two-year study of the mills and their needs. Result was a well-planned program in steps which permitted erection and relocation of a tremendous amount of machinery without any loss of production or loss of time by employees.

In 1939, before the work began, the company comprised two plants making up Henderson Cotton Mills and three plants making up Harriet Cotton Mills. Obviously, there was considerable duplication of machinery and processes. Consolidating and modernizing these five plants cost well over $1,000,000, broken down in part as follows:

1. Nos. 1 and 2 plants of Henderson Cotton Mills were consolidated at a cost of $333,000, which saves the company $75,400 a year, or 22.6% on the investment.

2. Nos. 2 and 3 plants of Harriet Cotton Mills were consolidated at a cost of $250,000, which saves the company $91,200 a year, or 36.5% on the investment.

3. No. 1 plant of Harriet Cotton Mills was modernized at a cost of $168,000, which saves the company $90,612 a year or 53.9% on the investment.

The last step in the program, recently inaugurated, involves replacing remaining standard-draft spinning in all mills with long-draft spinning at a cost of $566,000.

The savings described in the foregoing represent only direct costs; intangible benefits include improved quality of yarns, better working conditions for employees, greater flexibility, etc.

The first spot tackled was the opening and picking department of the Henderson mill, where the greatest need seemed to be. There, a new building was erected to centralize operations and replace the two old rooms. This new room was equipped with two lines of Whitin opening and blending equipment, each line containing four blending feeders delivering to a 24-in.x29-ft. lattice feed table feeding a vertical opener with cage section. The stock then passes through a down-stroke cleaner and Spirawhirl with cage section. Each line has a 24-in. automatic waste feeder for feeding in soft and reworked waste. All of the machines are Whitin.

The two lines of opening and blending equipment feed two separate sets of one-process pickers equipped with rake-head distributors.

A somewhat similar central opening and blending room was designed to supply the three Harriet plants. Three lines of equipment are in use, one feeding the coarse yarn mill (No. 1), and two feeding the consolidated plants (Nos. 2 and 3) which make the finer yarns.

For No. 1 plant, there are four blending feeders delivering to a 24-in.x30-ft. lattice feed table. The stock then passes through a vertical opener, a down-stroke cleaner with cage section, and a second vertical opener. Whitin one-process pickers fed by this line are equipped with rake-head distributors and a 24-in. automatic waste cleaner which provides for the disposal of soft and reworked waste.

For Nos. 2 and 3 plants, are two identical lines of opening and blending equipment each consisting of four blending feeders delivering to a 24-in.x30-ft. lattice feed table, a vertical opener with case section, a downstroke and a Spirawhirl cleaner with cage section. Bale

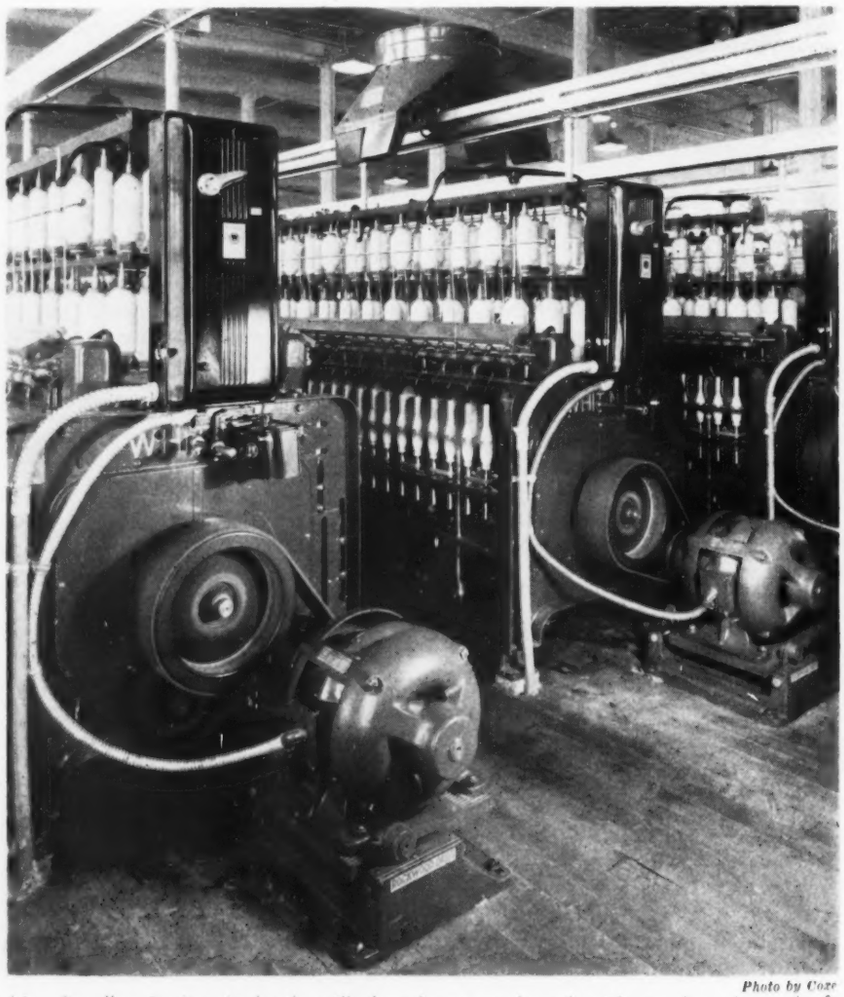


Photo by Coze

Nearly all spinning in both mills has been replaced with modern long-draft Whitin equipment or has been changed over to long-draft

breakers, formerly used in the opening rooms, have been entirely discarded.

The picker rooms serving Nos. 2 and 3 Harriet plants were completely revamped with two lines of pickers for two grades of cotton.

Cards in the Henderson Mills, formerly located in two separate rooms, were consolidated in a single room after being reclothed and equipped with new bearings and other parts. In the Harriet plants, 92 cards were overhauled and consolidated in one room on the first floor. Abington strippers were added to all cards.

In the Henderson plant 72 deliveries of breaker and finisher drawing, installed between 1928 and 1932, were completely revamped. This included changing from metallic to cork top rolls, overhauling traverse motion, stop motion, etc. Similar improvements were made to 100 deliveries of drawing which were changed over in No. 1 Harriet Mill, and to 70 deliveries in Nos. 2 and 3 plants.

Roving in the Henderson mill formerly was two process. Slubbers were eliminated and intermediates changed to long-draft, including six 10x5 Whitin frames; quite a few standard-draft 7x3½ machines were retained after being completely overhauled. New orders for the Henderson plants include twelve 90-spindle long-draft roving changeover and twenty new Whitin 8x4 regular-draft roving frames. In the consolidated Nos. 2 and 3 Harriet mills, slubbers also were thrown out and intermediates changed over to long draft, since the output from this system goes into coarse yarn. Seven 9x4½ and nine 10x5 roving frames were affected. Knitting yarn is put through the 7x3½ fine frames. All 12x6 and 10x5 roving frames were retained during the change-over. New orders for Harriet No. 2 include six new Whitin 8x4 long-draft roving frames.

Nearly all of the spinning in both the Henderson and Harriet mills has either been replaced with modern high-speed long-draft Whitin equipment or changed over to long-draft in order to reduce cost and balance production. At the present time, in the Henderson plant there are 25,104 new or changed-over spindles and 7,440 band-driven spindles which later will be replaced. There are 72 new 252-spindle, 3¼-in. gage, long-draft frames; 29 older 240-spindle, 3¼-in. gage, band-driven frames have been changed over to long-draft. Originally there were 42,144 spindles in the Henderson plant. A recent order was placed for twenty more new Whitin 252-spindle, 3¾-in. gage frames.

There is in place in the Harriet mills at the present time the following spinning equipment: In No. 1 mill, 36 240-spindle, wide-gage, long-draft spinning frames, totaling 8,640 spindles; No. 2 mill, 15,360 band-driven, standard-draft spindles; No. 3 mill, 7,680 spindles of wide-gage long-draft spinning. This is a total of 31,680 spindles in place at the present time. However, the 15,360 old band-driven spindles in mill No. 2 will be replaced immediately with 12,096 new long-draft spindles (48 252-spindle, 3¾-in. gage frames), reducing the total to 28,416 new spindles. There originally were 57,792 spindles in the three plants.

Much of the new spinning is powered with Westinghouse 10-hp. lint-free motors, with Rockwood drives designed to reduce slippage and simplify changes. A few of the old frames are still driven by large group-drive motors. By means of a demountable pulley, it is possible to change the new drives in a few minutes. On the large motors previously used, it sometimes took four hours to change the pulley, belt, three countershafts, and take up three belts. It is reported by the mill that the new lint-free motors require practically no attention as compared with the old motors which were blown out once a week, oiled once a week and taken apart and cleaned once a year.

A considerable quantity of new Foster, Universal, and Whitin winding and twisting equipment has been installed to balance production.

Lighting has been revamped, and new Bahnson humidifying equipment installed in the spinning rooms. American Moistening Co. humidifiers have been placed in all card rooms.

Before the summer of 1941 is over all the changes now planned are expected to be completed, and the savings in manufacturing costs probably will be even greater than the present 2c. per lb. average. But this does not mean that the Coopers are through and content to rest on their laurels. Chances are that already they have their eyes on 1950, and beyond.

FROM SILK TO RAYON AND COTTON

(*Continued from page* 80)

Home Economics, U. S. Department of Agriculture, last year released 56 designs of full-fashioned hosiery to manufacturers and more recently has developed other new designs. These designs range from plain knits for service wear to ultra-smart styles for dress wear. Some of them undoubtedly will be adapted to commercial production in the near future.

Combed cotton yarns most favored by full-fashioned knitters are 90/2 and 120/2, mercerized and gassed. Some experiments have been made with numbers as coarse as 40/2 and as fine as 160/2. Larger cones than those used for cotton welts and reinforcements are preferred. Cotton hosiery usually is knit single-carrier. As in the case of rayon, the yarn is run dry.

Maintenance of proper tension on the yarn is of paramount importance. The following method of tension control was recommended by Milton M. Abrams in an article in the March, 1938, issue of TEXTILE WORLD: "All felt pads should be removed from the tension devices feeding the yarn from the cone to the carries. A hole is bored through the base of the cups which ordinarily hold the felts, and a large bolt is driven in the center of the hole with the threaded end of the bolt facing upwards. A nut is threaded down to just below the level of the eyelets in the cup. One felt pad is then placed on top of the nut and one rayon disk placed on top of the felt. These disks are the same as those used for running rayon. The yarn is then threaded through the eyelets and either one or two rayon disks are placed on top of the yarn, depending on the amount of tension required. If the tension is still insufficient, the lower disk can be removed and the yarn run between the felt and upper disk. To prevent knitters from tampering with and removing the disks, a hole can be bored at the top of the bolt and a cotter pin inserted.

If the tension is properly adjusted, little difficulty should be encountered in knitting cotton hosiery. In fact, less trouble should be experienced from worn needles and guides, as cotton yarn is softer than silk and will not cut metal or porcelain parts.

Scouring, bleaching, and dyeing of cotton hosiery can be carried out in the same types of equipment formerly employed for silk hosiery. Either the one-bath or the two-bath method will give good results. Bleaching, if necessary, can be effected by the chlorine method or the peroxide method. All the leading manufacturers of dyes and chemicals employed in the hosiery industry have worked out formulas and procedures for use with both cotton hosiery and rayon hosiery, and dyers who have not had experience with those types of stockings can obtain expert advice from the demonstrators and other technical men employed by such companies.

Fabric Drying Speed Doubled

In several Paterson finishing plants by means of gas-fired booster heaters

PRODUCTION INCREASES ranging from 30 to 100% have been effected in several finishing plants in the Paterson, N. J., area by application of gas-fired booster heaters to conventional drying equipment. The method adopted by these plants to increase the speed and capacity of inclosed tenter frame and loop dryers appears to be widely applicable in the textile industry. Two installations—one at American Textile Processing Corp., and one at Commercial Piece Dyeing Co., both of Paterson, N. J.—are described below.

At American Textile Processing Corp. drying speed of a 90-ft. tenter frame has been doubled by installation of the gas-fired air heater shown in Fig. 1. This heater has been able to boost from 160° to 200° F. the temperature of the air circulated through the 70-ft. finishing inclosure. The unit, a 1,000-cu.ft. per min. No. 1 Maxon air heater automatically controlled and completely protected by latest-type safety devices, operates on 1,000 cu.ft. of gas per hour and the current necessary to turn its ¼-hp. motor. Its heat input supplements, or boosts, that supplied by the three steam-coil-and-fan units (one on top, two below) which formerly provided a temperature of 160° F. in the tentering unit. The indicating thermostatic control at the time the writer visited the installation showed 250° F. (30° F. over the promised figure) in the finishing chamber—the 90° F. increase being entirely due to the booster unit.

Commercial Piece Dyeing Co. has, for several months, used identical gas-fired booster air heaters on a three-line Philadelphia Drying Machinery Co. loop drying machine and a two-line National Drying Machinery Co. loop dryer. The inlet end of the latter (with the booster unit shown in the upper right-hand corner) is shown in Fig. 2. Fig. 3 is a close-up of the gas-fired air heater.

David Meltzer, plant manager, cites a production increase of 30% in both cases, because of the added heat. Both dryers are employed for drying rayon fabrics. Previously 1,500 to 2,000 lb. of steam per hour held the boxes at 190° F. and 175° F., respectively; now, with the help of the gas-fired boosters, finishing temperatures are 250° F. and 200° F., respectively.

The installations at both plants are due to the ingenuity of Bernard F. Reimers, of Public Service Electric & Gas Co., Paterson, N. J. Mr. Reimers has already installed twelve gas-fired air heaters in finishing plants in the Paterson area. He believes that this method of increasing dryer speeds offers mills in other parts of the country a means of stepping up production to meet present-day demands.

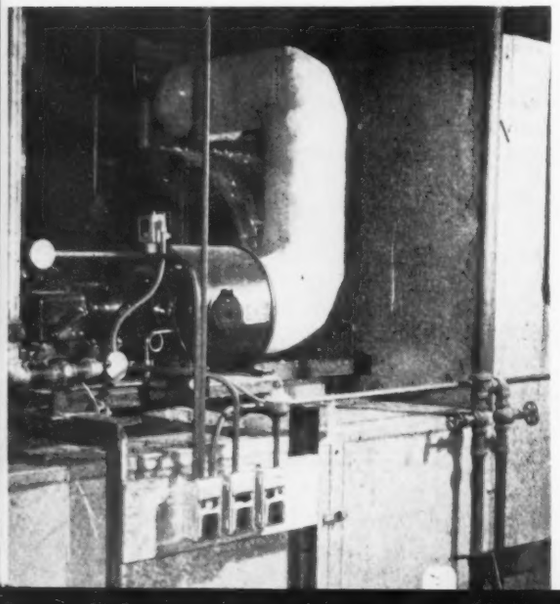


Fig. 1. Gas-fired booster heater installed on 90-ft. tenter by American Textile Processing Corp.

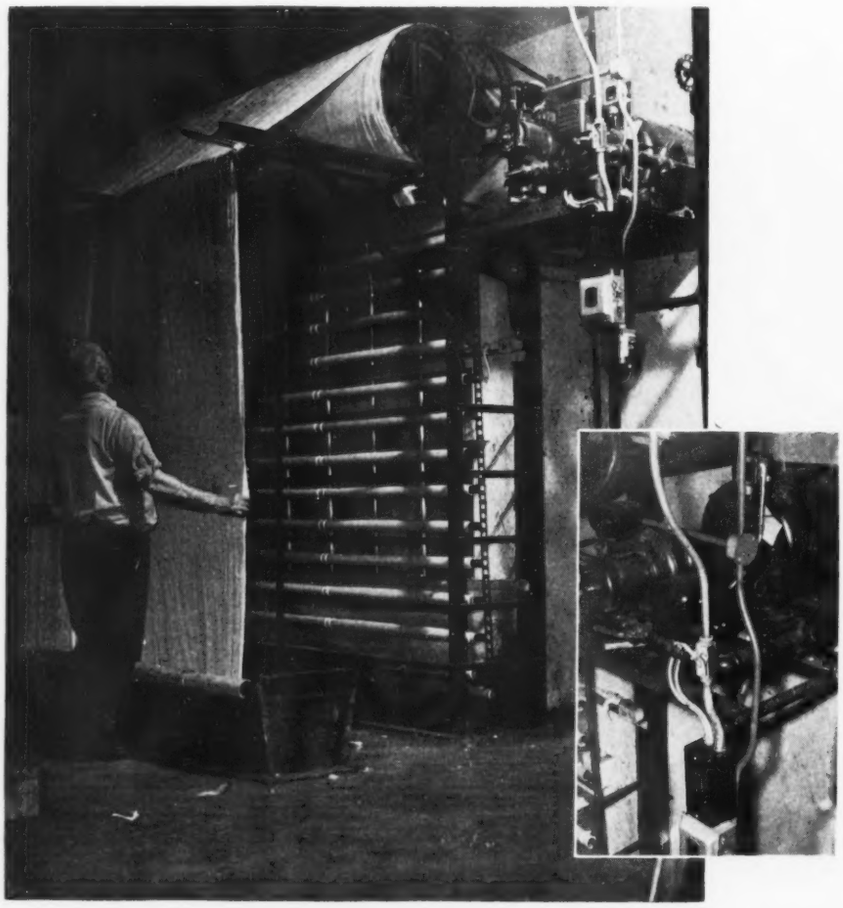


Fig. 2. Inlet end of National loop dryer at Commercial Piece Dyeing Co.; note booster unit at upper right-hand corner. Fig. 3. (Inset) Close-up of booster unit applied to loop dryer shown in Fig. 2

Cost Manual for Yarn Processing

Compilation of lot costs, building up standard costs, and budgetary control

By FORREST J. FALES
Cost Engineer, Glenlyon Print Works

Previous articles in this short series, which began in our May issue, described the setting up of processing and cost centers, use of stores-issue and time cards in compiling and allocating expense, allocation of expenses, and setting up schedules of expense. This final installment—dealing with lot costs, standard costs, and budgetary control—concludes the series

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IX. Standard routings (continued). When standard routings have been established, unit costs should be applied for each process and cost center, and a summary cost for the total routing. By this method it is necessary to make but a single entry for this part of the cost on the lot-cost card, described later.

X. Compilation of lot costs. Because of the wide variation in costs of different shades and classes of yarn, it is recommended that cost be figured for each lot processed. This can be accomplished by the use of lot cost cards, shown in Figs. 7 and 8. The method of issuing these cards will depend upon the system of records in force in different plants.

It will be noted that provision is made on the lot cost cards for the recording of the total cost of the standard routing. In addition, space is provided for the recording of time and cost for those operations figured on the basis of the operating hour and the cost of dyes used in producing the required shade.

The cost of dyes is obtained from the stores issue cards described in Section VI. The cost of the processes and cost centers which are figured on the hour basis is obtained by multiplying the hour cost by the actual hours the lot utilized the processes and cost centers. The amount so obtained will be divided by the total pounds of the dyeing or lot to obtain the pound cost. This method of figuring cost on an hour basis makes necessary the record-

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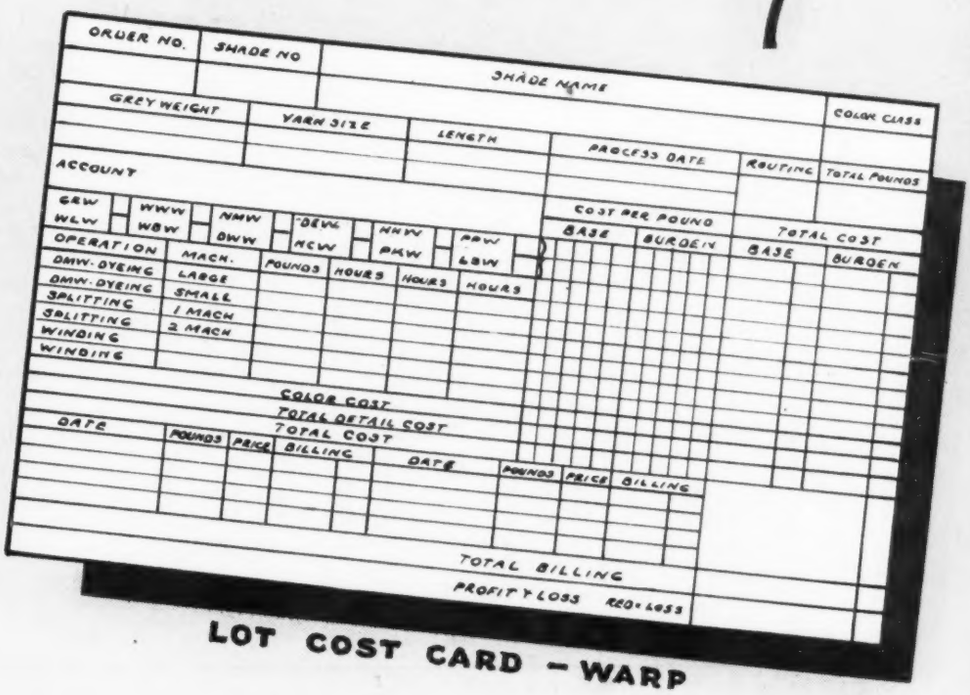

LOT COST CARD — WARP

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LOT COST CARD - SKEIN

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ing of the time each and every lot makes use of such processes and cost centers.

When the cost has been completed on a lot cost card, the outcome as to profit or loss may be obtained by applying the total billing of the lot in the space provided.

XI. Standard costs. All the foregoing has been written with the idea of the establishment of actual costs, and the author believes it desirable to do this, as such costs will supply a survey of operating conditions which is necessary in the building up of standards from which standard costs are compiled.

Standard cost is defined to be a cost based on normal production for each process and cost center, working under ideal operating conditions.

If standard costs are to be used as the basis for making finishing prices (and this is accepted practice), it is apparent that great care should be exercised in establishing standards. In addition, it is of the utmost importance that all variations from standard be scrutinized carefully and steps taken to remedy them. This is particularly essential, as anticipated profits based on standard cost and established finishing prices must be borne out by the actual profits as shown by the main books.

The first requirement in setting standards is that of normal production. This may be based on 80% of capacity or some other figure which is acceptable to the trade as a whole. When this has been determined, it becomes necessary to establish normal productions for each and every process and cost center. This will have to be done by finding the ratio of each (from past records if possible) to the total receipts of yarn, and apportioning the established normal for the plant as a whole on the basis of the determined ratios. These figures should be varied also, if possible, in line with future prospects of business, particularly with respect to character of work. This is an important item and will have to be worked out by someone within each plant with an intimate knowledge of operating details.

When normal productions have been established for each process and cost center, standards may be set for labor, material, and auxiliary departments, based on such productions.

Using the standard productions, labor, material, and auxiliary expense as a basis, one can build up a standard cost for each process and cost center in accordance with allocations and distributions advocated in this manual for actual costs. This record should show the total money involved and the unit cost for each process and cost center, as with actual cost, and should represent a six-months' period to permit direct comparisons.

When once set up, standards will remain in force without change until a sufficient difference occurs in labor and material cost to influence considerably the final cost of a lot of yarn.

XII. Budgetary control. As a means of control of expense it is recommended that some form of budgetary control be established, so that variances indicating loss may be broken down and analyzed. Because of the fact that distributions are made each six months and that facts should be known at least each month, it is recommended that the control apply each month through the plant cost records, described above. This will be measured by operating and auxiliary departments and may be accomplished in a simple manner as indicated in the following paragraphs.

By the use of standards as described in Section XI, factors may be compiled for each of the elements of expense as enumerated in Section V. These factors used in connection with the actual productions each month will indicate the amount of money which should be expended for each item. By summarizing the standard expenditure of the processes and cost centers by departments and incorporating the record in the plant cost files, preferably at the bottom of each department sheet, one can measure the difference over or under. To this record should be added the variance from standard on the items obtained through the main books, and the total will represent the amount over or under for the plant as a whole.

The variances should be carried forward each month for the year, so that efficiency of plant operation may be watched. By breaking down of the variances into details, points necessitating special investigation will be exposed.

Institute Enlarges Promotion Plans

THE COTTON-TEXTILE INSTITUTE is enlarging its promotional activity jointly with the National Cotton Council. For the two organizations, the Institute representing manufacturers and the Council raw cotton interests, a fund of 5¢ a bale on this season's American cotton crop seems assured. Main objective of the joint program will be to keep the basic domestic trend in cotton consumption moving upward with the aid of research, more effective merchandising, development of new uses and wider fashion appeal. For this program, the Institute has made several personnel changes.

VIRGINIA JEWEL

JOHN W. MURRAY

Miss Virginia Jewel, formerly associate editor of the Butterick Fashion Magazine, has been named fashion director. She will make available a reporting and publicity service covering fashion developments in cotton fabrics, apparel and home furnishings. Working with mills, converters, and cutters-up, she will develop promotional tie-ups and exhibits, conduct market surveys, give talks to students, and edit the fashion section of the Cotton News Letter.

John W. Murray, who for the last six years has been textile editor of the New York *Journal of Commerce*, will have charge of public relations, as noted in these columns last month. He will work with Edward Lipscomb of the National Cotton Council on the joint promotional program.

Charles K. Everett will continue as director of merchandising. His office will greatly expand the volume of information and merchandising aids for retailers. He will continue to work with industry and Government agencies in developing new uses for cotton.

A Mill President for 50 Years

Anniversary of Alden Mills marks also anniversary of A. W. McLellan in office

A. W. McLellan, the only president this 50-year old firm ever had

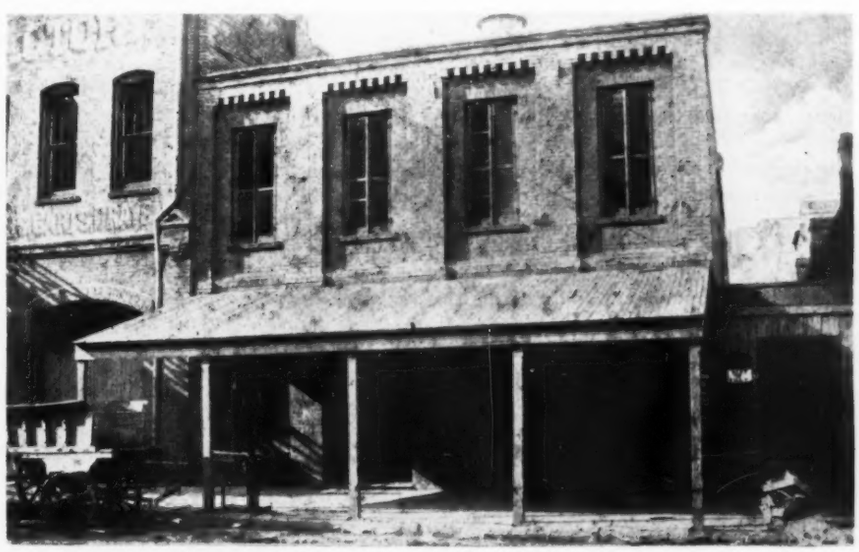
FIRMS FOUNDED IN 1891, which have weathered the intervening years, are this year celebrating their 50th anniversary. It is likely that few of them can match the distinction of the Alden Mills, hosiery manufacturers, of New Orleans, La., in having had but one president over that half-century span. A. W. McLellan was elected president of the Alden Mills when it was incorporated on Jan. 2, 1891, and he is still in that office. He has seen the company grow from an initial investment of $2,000 in one small plant to its present capitalization of $330,000 and its present operation of three plants—one in New Orleans and two in Meridian, Miss.

A. W. McLellan has been an active figure not alone in the hosiery business but also in the cotton-textile industry. He served six terms on the board of governors of the American Cotton Manufacturers Association from 1914 to 1920; was elected vice-president in 1923 and president in 1924. He was instrumental in having the first convention of the A.C.M.A. to be held in New Orleans, held there in 1925. He traveled with the group representing the cotton trade on a return-visit to the West Coast of South America in 1915, following the visit to this country by representatives of cotton interests from the Latin American countries. Mr. McLellan was also member of the committee representing A.C.M.A. and the cotton trade of the United States which went to Europe in 1919 to consult with European interests relative to the improvement of methods in shipping American cotton. He has been a member of the New Orleans Cotton Exchange since 1904.

The Alden Mills made their start 50 years ago on Julia Street in a two-story building, with 3,600 sq. ft. of floor space. The initial equipment consisted of 35 hand-operated circular machines. The company now does its work in three plants totalling more than 200,000 sq. ft., with equipment of 1,164 knitting machines, 103 ribbers, 82 loopers and 52 sewing machines. In addition to knitting, the company spins its own cotton yarn, operating 20 cards and 6,876 spindles; for throwing it operates 2,500 spindles; for packing it operates a box-factory. No figures are available on the production rate back in 1891, but today Alden produces over 200,000 doz. prs. of hosiery a month. Its dyeing plant, a component of its operation from the beginning, was one of the first of its kind in the South.

The Alden Mills are a good example of success through modernization. For example, in 1899 the company disposed of all of its knitting machinery and started out with a complete new complement of equipment. The first branch plant was erected in 1909 at Meridian, Miss. In 1928 the company added to its line of seamless goods, the production of a newly-installed battery of full-fashioned machines. The company maintains its own selling office in New York, in charge of C. R. Losey, sales manager. W. H. McLellan joined the organization in 1893 and was later appointed vice-president and served until his death in 1934, and Charles McLellan, now vice-president and manager, entered the employ of the company in 1904. The New Orleans plant has a monthly production of 40,000 doz. prs. 176-needle seamless hosiery; 20,000 doz. prs. 240-needle split-foot hose; 15,000 doz. prs. full-fashioned stockings. The mills in Meridian have a monthly production of 125,000 doz. prs. 176-needle seamless hosiery. Together, the two knitting mills and spinning mills employ over 1,500 workers.

Many American soldiers in various climates and wars have worn Alden hosiery. The company produced socks for the army during the Spanish-American War; it produced heavy socks for the dough boys during the first World War; today is working on hosiery in the current defense program.



In this building in New Orleans, Alden Mills spent its early days

Reeds and Weaving

Proper selection, installation, and maintenance will help improve fabrics

By STEPHEN MAJOR

WHILE MANY MANUFACTURERS have given more attention recently to the selection of the most suitable reed for weaving particular fabrics, still surprisingly little attention is paid to this part of the loom. Briefly, the function of the reed is to: (a) hold the warp ends equidistant or in their correct positions at the beat-up; (b) beat up the filling after it has been inserted; and (c) form a guide or back support for the shuttle during its passage across the lay.

In carrying out its functions, friction between reed and warp ends must take place, the amount of friction depending on kind of yarn and reed used, number of ends and picks per inch, sweep of lay, and size of shed, etc. Warp abrasion is caused by: (a) the movement of the yarn through the reed as it travels from heddles to fell, (b) the to-and-fro motion of the reed as it moves with the lay, (c) the lifting and lowering of the ends to form the shed, and (d) the rubbing or sawing action on the ends near the salvages as the reed comes forward to beat up the filling and forces the warp outward from the center. Where friction is excessive for the particular yarn being woven, an alteration in the thickness or shape of the dent wires or in the construction of the reed often reduces friction without introducing adverse factors.

It is well known that in certain fabrics the warp ends tend to show the reeding. This lack of cover, or "reediness," is greatly influenced by the thickness of the reed wire or the amount of air space between the dents. It is advisable, therefore, to specify the amount of air space required when buying reeds, and to check this before using them in the weave room. It is almost impossible to weave two pieces of cloth with exactly the same appearance when reeds with different percentages of air space are used.

The best amount of air space depends on count of reed and type of yarn used, number of ends per dent, character of cloth, etc., and so must be ascertained by individual manufacturers for each particular job. It can be said, however, that about 56 to 58% air space is generally best, provided it does not crowd the warp, and that the largest weaving space does not necessarily give the best results. While the yarn should be able to move freely through the reed, it should not be loose enough to move sideways.

Where very fine wire is used, additional strength can be obtained by increasing its depth from front to back in the reed. It might also be advisable in such cases to have slightly stronger wires at the selvages in order to counteract the greater pull at these points. Where the reed thickness is increased, care must be taken that the new reed does not overface the box backs.

Bevel- or round-edged dents are now in general use and tend to minimize chafing of the warp during weaving. Oval-shaped wire has also been used with considerable success in weaving certain types of fabrics, and is advantageous where there are a number of ends per dent and where knots or slubs have to pass through the reed. Oval wire gives more space for entry and exit of the yarn at the reed and, owing to the smaller area of contact between wires and yarn, is less likely to chafe rayon filaments than flat wire or wire with bevelled edges. However, oval shaped wire is often so thin on the edges, particularly in finer count reeds, that the shuttle running along its face turns the edges and makes them sharp enough to cut the warp and filling.

REEDS SHOULD POSSESS the required rigidity or resilience, and should be smooth, as strong as practicable, and perfectly straight along the face. All reeds should be examined before they are used. Dents should be accurately spaced and wires quite firm at the points where they are attached to the ribs. In all-metal reeds the dents are firmly soldered in the springs and plates and are usually more regularly spaced than in pitch-band reeds and are less likely to give way.

Advantages of the all-metal reed for certain types of fabrics are: (a) it is usually more regular in count; (b) thinner wires can be used, allowing more space for the warp; and (c) wires are less liable to give way during weaving.

However, the all-metal reed is higher in initial cost as compared with the pitch-band reed and temporary repairs cannot be made at the loom. (Metal reeds must be returned to the reedmaker for repair.)

Inside depth of reeds varies considerably in different sections of the textile industry, although 3½ or 3¾ in. is considered best for ordinary purposes, as it gives flexibility combined with strength. With a given wire, the greater the depth the more flexible is the reed. The depth must, of course, be sufficient to allow the full opening of the shed without either the top or bottom warp line rubbing against the ribs. Whether the reed should be made deeper than is necessary for the full opening of the shed depends on whether a flexible or rigid reed is desired. With reeds of greater depth than 3¾ in. there is a danger of the dents spreading under the strain of weaving.

NEAR THE SELVAGES reed wires are often forced inward as the reed moves forward, due to the contraction of the warp at the fell. This trouble can often be prevented or minimized by the reedmaker making the "bow" of the wire from the center to the extreme edges conform to the pull of the yarn in the reed.

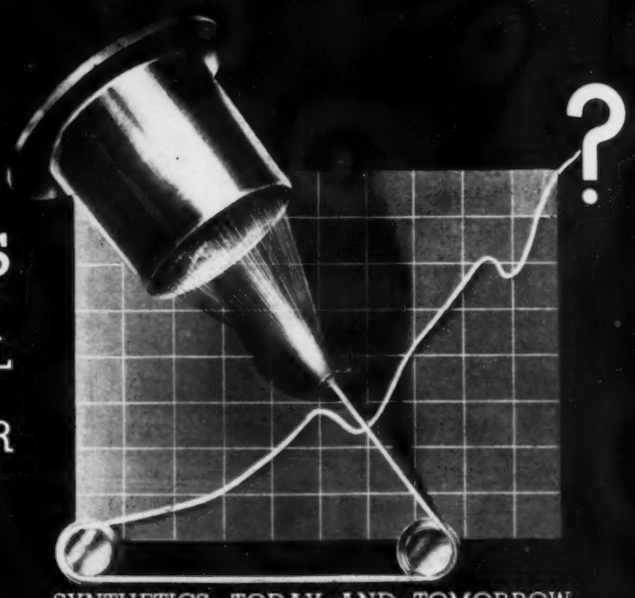
Many reeds are damaged or wear out prematurely because of bad fitting and other faults at the loom, and by being allowed to get rusty or otherwise impaired. When reeds are not in use they should be carefully stored on shelves or hung up in a dry atmosphere. Each reed should be carefully examined before it is used and any defects remedied. It should also be cleaned whenever necessary. When drawing-in a warp, care should be taken that the drawing-in hooks are suitable. If a hook is too thick it distorts the wires.

Faulty templing is one of the commonest causes of prematurely worn and damaged reeds. Temples must be suitable, in good condition, and properly fitted. To minimize the sawing action between reed and warp, they should hold the fell to the approximate width of the warp in the reed. On no account should they be allowed to contact the reed as such contact damages the reed and makes piecing up or replacement necessary.

Reeds should be carefully fitted into lay and reed cap and should be set at the correct angle with the raceplate and back box plates. If the angle is not correct, excessive wearing might be caused by the top or bottom edge of the shuttle rubbing harshly against the reed. Reeds are frequently damaged when the shuttle is trapped in the shed, or by a rough or damaged shuttle.

Textile World's

SEVENTEENTH ANNUAL RAYON YEAR BOOK NUMBER



SYNTHETICS, TODAY AND TOMORROW

Not Whether, But When and How Much?

DON'T MISUNDERSTAND the question mark on the front cover of this issue, as reproduced above. This does not imply a question whether synthetic fibers will continue on the up-and-up. It merely asks how quickly they will move up the production scale, how much output they will add each year, what new forms synthetics will take, and when they may be expected to achieve domination as the main raw-materials of the textile industry.

Each year, each month, each day, these questions become harder to answer, as the tempo of change is accelerated. Constantly, the endpoint of a synthetic textile industry becomes more probable; constantly the date of its arrival must be advanced.

Nationalistic ambitions of Germany and Italy gave the first extra spur, in addition to the natural strides rayon was making every year. The impetus given to the use of staple fiber in those countries extended to Great Britain and the United States. Then, war in Europe followed by our own defense program created a new demand for all types of materials and pushed the synthetic producers that much harder. Most recently, the Japanese aggression erased silk from the textile picture.

At the moment the effect of all this pressure has been merely a headache for synthetic producers. In the long run, however, it will be a further step toward the domination we referred to above.

The exit of silk is the most dramatic of all the steps in the onward march of rayon. For it was silk that was the first target of the original "artificial silk." And, strangely enough, it was silk that held the last battleground—full-fashioned hosiery—against rayon. Held it, that is, until (1) along came Nylon, and (2) Japan got fresh.

WHAT IS THE END of the question mark? To repeat: practically a completely synthetic textile industry. Many careful observers do not believe that will ever come. But neither did many careful observers think we would ever have practically a completely synthetic dye industry. At the expense of repetition—and purely because it is so important—we must point out again that the same reasons which enabled synthetic dyes to eliminate most of their natural prototypes are the reasons which will enable synthetic fibers to oust most of the natural materials. Those reasons are uniformity, versatility, and controllability of both quantity and types of production.

In addition to the dominance of synthetic fibers there will develop the slower but equally sure emergence of synthetic fabrics, made without benefit of existing standard textile machinery. Right along we have predicted this, as well as synthetic-fiber domination. We stick to both stories. And we are glad to note that we have on our side so eminent an authority as Dr. Harold De Witt Smith, who is quoted extensively in the article on the following two pages.

WHEN will all this happen? We don't know. Five years ago we would have said that it *might* happen in the next half-century. Today, we say it *might* happen in the next quarter-century. Any further shortening of the prediction gap is anybody's guess and depends upon a lot of things, including Hitler's health.

Douglas G. Woolf

SYNTHETICS OF THE FUTURE

AS A PRELUDE to this broad look into the future of synthetics in the textile industry, it is pertinent to repeat a prediction made by TEXTILE WORLD in February, 1940, in its special study of The Next Decade in Textiles. In connection with synthetics, it stated:

"In 1950, synthetic fibers may account for 25 or 30% of the total consumption of textile raw materials, against 8% in 1939. Specifically, filament rayon consumed may total 500 million pounds, against 362 million in 1939. Rayon staple fiber consumption may total 700 million pounds, against 100 million in 1939. Acetate rayon will have a greater percentage gain than viscose. The new synthetics—Nylon, Vinyon and others not yet born—will be used in quantities which even this writer, with his yen for prediction, hesitates to estimate. Unless total textile consumption can be boosted in proportion—which is possible but not probable—the increase in synthetics will be at the expense, largely, of cotton and wool. Silk will dwindle still further, and particularly will lose the commanding position it now enjoys in full-fashioned hosiery; however it will retain a limited place as a luxury fabric in women's apparel for those who can afford it. The synthetic fiber march will not have reached its zenith a decade from now; it will be on its way to complete domination of the textile field—say certainly by the year 2000."

Since that was written, the at least temporary passage of silk from the textile scene and the pressure placed upon all materials by the demands of the defense program may be expected to hasten that final outcome of "complete domination" by synthetics. Certainly, the above predictions of probable production by 1950 can be upped safely today. Just how much is anybody's guess—but not this writer's, under today's hazy conditions.

THE PHILOSOPHY underlying this march of the synthetics is not an academic subject. It is of vitally direct concern to all who wish to look into the future of the textile industry—and that presumably includes all those now engaged in textiles.

That philosophy was analyzed in a scholarly manner by Dr. Harold DeWitt Smith, of A. M. Tenney Associates, in an address delivered at the Rayon Institute of North Carolina State College in May. His analysis is a valuable contribution to the subject to which part of this special section is devoted: The Synthetics of the Future. Consequently we borrow liberally from Dr. Smith below:

A look ahead into an era of "made to order" materials for textile manufacture

"Comparatively early in history, certainly before 1000 B. C., man had discovered and mastered the processing of wool, cotton, flax, and silk and had devised a separate technique and special equipment suited to the distinctive properties of each of these natural fibers. Jute and hemp, the other two commercially important natural fibers, also had to be handled in distinctive ways.

"The primitive but distinctive hand techniques of processing each natural fiber have been perpetuated by development into the highly complex machines in our modern mills. That the characteristics or 'personality' of each fiber has dominated textile men's thinking is evidenced by the fact that we have not simply spinning machinery, but cotton machinery, woolen and worsted machinery, linen machinery; not just looms, but cotton looms, worsted looms, silk looms.

"In other words, through thousands of years of slowly developing civilization and culture, man found but a half dozen important fibers and of these only four were suitable for a wide range of household and apparel uses. Each of these four possesses a combination of properties which gives it an individuality both from the standpoint of processing; i.e., cleaning, drafting, spinning, and weaving, and from the standpoint of the texture and utility of the finished fabric. The properties of each of the fibers have remained essentially fixed and immutable throughout the ages.

"Rayon from the date of its birth to the early 1920's was made by man in silk's image. Its sole reason for existence was as an imitation of silk. Therefore, throughout the history of textiles up to the debut of rayon, the philosophy of textiles has rested on the fixed qualities of a few natural fibers. *All man's textile thinking has been centered on how to cater to these particular properties in processing the fibers and how to create the fabrics and textures desired within the limits imposed by these fixed qualities. All man's judgment of textile quality and textile performance has of necessity been measured against these four natural fibers as standards.*

"The imitative concept of making fibers in the image of the natural fibers goes back at least as far as 1664, when Robert Hooke suggested it in 'Micrographia.' The continuous-filament rayons have been developed to produce silk-like fabrics; Nylon has been developed to produce silk-like hosiery; the rayon staple fibers have been developed to produce linen-like, worsted-like, or wooly types of fabrics.

"During recent years, it has become more and more evident that these man-made fibers have many characteristics which are distinctive from the natural fibers. *You are entering an era in which textile fibers will be 'made-to-order' to suit particular needs and purposes.*

"One of the principal tasks which you have before you is to work with the research physicists and the rayon chemists to determine the properties desired in a fiber for a specific use.

"In the manufacture of fibers, the choice of fiber substance and the mechanism of fiber formation determine the basic physical properties, such as strength, elongation, elasticity, resilience, color, refraction index, fiber cross-section, fiber surface, fiber dimensions. Many of these, such as luster, strength, cross-section, and dimensions, are already under good control. Others, such as surface character, are not. Only the textile designer working with the rayon chemist and physicist can determine what combination of properties is most desirable for a coat or a carpet or a fish net. They are *not* necessarily the properties of silk or wool or cotton or linen or jute or hemp! Once the desired specifications are known, a man-made fiber will be developed to meet them.

"Those 10,000 years of handcraft in textiles set the pattern for the power-driven carding, combing, drafting, spinning and weaving machinery of the last 200 years. The *principles* of reducing a tangled mass of short fibers into a soft web or strand, and doubling and drafting these strands to parallelize the fibers and even the strand; of drafting and twisting the roving into a compact, coherent yarn; of laying up these

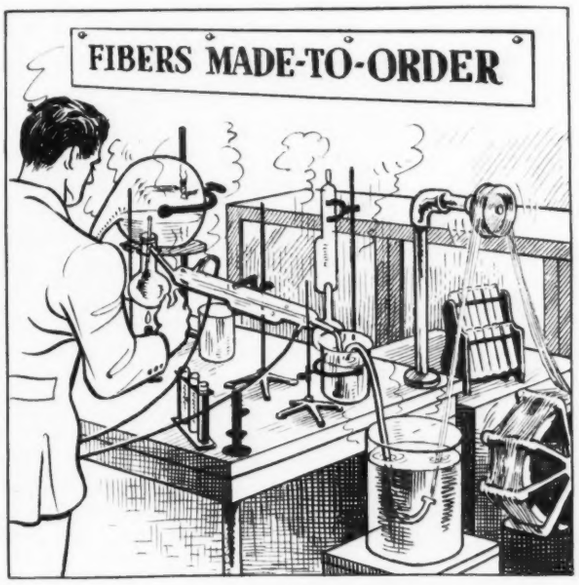
yarns in parallel arrangement to form a warp through which the filling can be interlaced to form a fabric, are the same for *all fibers*. The practice of these principles has hardened into a set pattern for each of the natural fibers.

"The advent of man-made fibers has freed us from dependence upon the limitations of the forms in which these natural substances occur. For example, while silk is an essentially continuous filament, especially in the form of a single raw thread which is made up of a half dozen or more cocoon threads, it has been put up since time immemorial in skeins of a few ounces. When these are doubled and thrown, the compound thread is usually put up on spools holding from 2 to 6 oz. and, therefore, from 15,000 to 30,000 yd. at most. The traditional system of warping silk is from a creel holding from 300 to 600 of these spools. The speed of warping is governed by the friction and drag of the rotating spools and is usually limited to not more than 150 yd. per minute.

"Compare this to the warping of present-day rayon. A 3-lb. cone of 55-den. rayon holds 240,000 yd. of yarn and averages about two to three knots per cone. A magazine creel holds a double set of these cones so arranged that the yarn comes off over end with no drag whatever. The tail end of each active cone is tied to the beginning of a reserve cone so that the creel is fed continuously and warping is accomplished at speeds of several hundred yards per minute with no stops for refilling the creel and with a uniformity of tension and of spacing on the warp mill far exceeding previous practice.

"Consider the subject of *cleanliness and uniformity*. Much of the opening and preparatory processing of cotton is designed to shake out the leaf and seed fragments, dirt, and dust in the raw cotton. Wool must be scoured to remove the grease, then opened and carded and combed to sort out the shorter fibers from the longer ones. Hand sorting of the fleeces themselves by human judgment is the only way of partially separating coarse fibers from fine. All these preliminary processes add cost, and damage the fibers to some extent.

"Rayon staples are clean and free of all impurities. They are cut to any uniform exact length desired. For a given denier, there is, of course, some variation in fineness, but the great majority of the fibers are very close to the nominal denier. Because of the absence of dirt and the uniformity of fineness and length, existing cotton and worsted mills can eliminate some of the steps when spinning the rayon staples. The makers of spinning machinery have grasped the new viewpoint and are studying two questions: first, 'What is the ideal length and diameter distribution of staple fibers to make a good yarn?' and, second, 'What is the simplest and most economical equipment for converting such fibers into yarn?' Several systems using staple lengths of 2½" to 3¼" have already been described in which the steps of processing have been reduced to a half dozen.



"This trend of thought leads, of course, to another which has been in many men's minds ever since staple fiber has been made by cutting up continuous strands to form a tangled mass of short fibers which subsequently have to be carded out and parallelized again. This question is: 'How can a strand of continuous filament be converted directly and continuously into a spun yarn?' The patent literature and the trade press are full of attempted answers to this, and there is little doubt that it will be solved practically on a large scale. Several processes have been used to a limited extent.

"The problem is to produce short fibers from the continuous strands in such a way that the fiber ends are distributed at random along the strand and without destroying the parallel arrangement. Such a strand is a roving which can then be drafted and twisted by the usual spinning methods to form a yarn.

"If you have inventive genius, you will find this a fascinating problem. It will probably be solved first for coarse deniers and coarse yarns. However, the versatility of the traditional system of carding, drafting, and spinning; its ability to spin fine yarns of great evenness; and the facility with which blends of different fibers and of different deniers of the same fiber can be handled, will probably preserve it for a long time despite the obvious economy of the tow-to-yarn method.

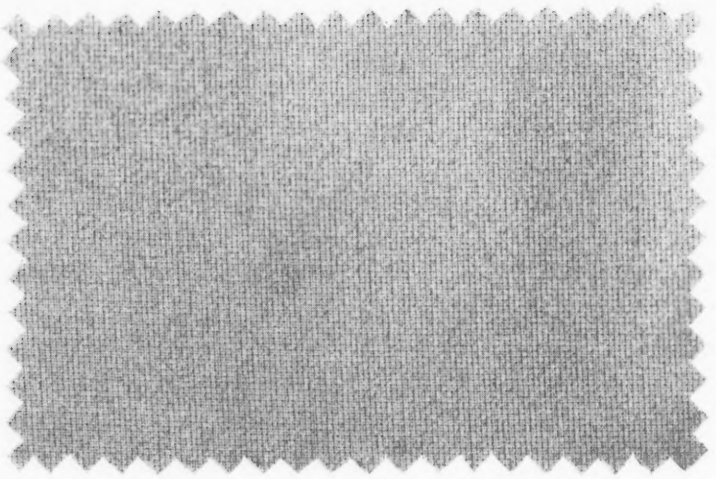
"In the field of fabric manufacture, there are two recent developments of great interest for the manner in which they have broken with textile tradition.

"One of these is the electrostatic method of producing pile fabrics. Cut flock of rayon or natural fibers in lengths of from 0.025 to 0.060 inches is fed into a space between two highly charged electrodes. Simultaneously, a length of fabric coated on the upper side with a suitable adhesive is moved across the face of the lower (positive) electrode. The fibers first stand erect and are then propelled endwise at high speed toward the positive electrode. Their high velocity causes them to become embedded to from one-half to one-third of their length in the cement and their highly charged condition not only keeps them rigid, but spaces them evenly because of their mutual repulsion. A pile density as high as 300,000 fibers per square inch has been attained, which is considerably greater than can be made by any traditional system of weaving.

"The second example of unique fabric construction is the making of felt by mixing a certain proportion of plastic fiber, such as vinyon or plasticized acetate staple, with another fiber or fibers and felting the mass by subjecting it to controlled heat and pressure. This binds the plastic fibers to one another, and so traps the other fibers into an interlaced sheet. This process eliminates many of the complicated steps and uncertainties of felt making. It permits of the use of non-felting fibers in felts. By control of fiber blend and pressing conditions, a range of felts from a very soft, porous filter material to a hard, tile-like wallboard can be obtained.

"These few examples of the new ways in which yarns and fabrics are being made will serve to illustrate the impact of the new textile philosophy on textile technology."

ROMAINES



Romaines, perennial favorites among combination-yarn fabrics, continue to be popular for dress goods as rayons move into another season. Typical constructions, including that of the sample illustrated, are given in the panel at right. To produce these fabrics efficiently and economically, precautions must be taken in selection of yarns and soaking formulas, in plying of crepe with acetate and in preparing filling yarns, in preventing mechanical damage to the yarns during weaving, and in using boil-off methods which will help avoid creases and breaks.

THROWING. Of all the standard combination yarns, that in the selected acetate-rayon romaine is one of the most difficult for the throwster. Fortunately the crepe used in this 75/75 combination yarn has only 30 filaments and but 55 turns per in., which makes the single-end yarn less difficult to twist than the customary 75-den. with 60 to 65 t.p.i. and often 45 to 60 filaments.

It is suggested that bright viscose only be used for the crepe, as in this sample. This is because bright rayon normally stands twisting best, and therefore can be handled more easily and with more assurance of success. Raw yarn should have initial twist in the same direction as the crepe twist wanted; otherwise imperfect yarn, and hence inferior fabric, will result. It is especially difficult to reverse the twist in 75-den. yarn.

Care should be exercised in selecting the soaking formula. Not less than 20 lb. of oil per 100 gal. should be used, assuming that one of the conventional sulphonated-base-plus-coconut types is used. The gelatine or compounded size employed should be kept at a minimum, using only enough to keep the creping action uniformly controlled. About 4 lb. per 100 gal. is recommended. Tints used should be distinct and sufficiently dark to identify the yarn clearly, even after it has been plied with white acetate.

As is particularly true with all 75-den. yarn, winding and twisting tensions must be kept at a minimum and should not exceed 30 grams. Special care must be taken when knots are tied in order not to strain or damage the yarn.

The most particular operation in throwing this yarn is the plying of the crepe with the 75-den. acetate. For most satisfactory results, the acetate should be S twist for the S-twist combination, and Z for the Z. Attempts to use S-twist acetate for both combination twists will result in excessive broken filaments, acetate loops in the ply if combined on conventional machines, objectionable quantities of knots due to yarn breaks, and a fabric that differs in appearance from one made with S and Z acetate.

When plying, twisting causes the crepe to contract more than the acetate; hence, more tension must be placed on the acetate than the crepe to balance the components and avoid loops or kinks. In addition, all tensions should be kept uniform if warp streaks and filling bands are to be avoided. And tensions must be kept as light as possible, yet not so light that the crepe can kink in the ply.

Special care must be taken with the filling yarn in the example under consideration, since only one twist is used, which means that the fabric will probably be assigned to a one-box loom. Variations in the filling will show up as filling bands.

The one-way filling in this romaine should be made from all S-twist yarns, as specified. It is usually more difficult to obtain Z twist yarns than S, and it is almost universally true that S-twist yarns can be thrown better than Z, reasons for which are too numerous to mention in this article.

The yarn in this romaine is quite well adapted to small-package, rayon-combination throwing plants, which include converted silk-throwing equipment, since tensions must be kept low and the relative fineness of the yarn makes possible long yardages free from knots, even on small packages. Lowest costs, however, can be expected from the larger-package installations, if speeds are kept sufficiently low to minimize breaks.

Knots are especially objectionable. They are a frequent cause of acetate stripbacks which occur when the crepe at the knot bites through the acetate. Improper plying or damaging of the acetate also are likely to cause acetate stripbacks. Principal cause of crepe stripbacks is weak or damaged crepe, sometimes the result of reversing the initial twist. Acetate stripbacks are more common than crepe stripbacks in this fabric.

Finally, but not least important, is the great need for producing clean yarn. Dirt, particularly in the crepe component, cannot be depended upon to wash out. Soiling by operatives' hands, by dirty equipment, or by oil must be particularly guarded against, if first-quality work is to result.

WARPING AND WEAVING. In preparing warps for weaving this acetate-rayon romaine, use of section beams made on a direct warper is recommended. It is also advisable to use only packages containing equal yardages of yarn, and to make certain they all begin and run out together. This will make it possible to keep all knots necessary when tying in a new bank within a relatively narrow spread, and thus to keep knots at a minimum.

Tension should be carefully regulated and frequently checked, to give positive assurance that it is equal on all section beams.

Weaving defects most frequently encountered, and which should be guarded against, are warp and filling stripbacks, center loops, and broken picks. It will be found advantageous to have the loom

CONSTRUCTION *(of fabric shown at left)*

30/2/1x47 in. in reed
52 pick wheel

Warp: 75/20 dull acetate rayon, 5 turns	} 18 turns	1S
75/30 bright viscose rayon crepe, 55 turns	} twist on twist	1Z
Filling: Same as warp, but all S twist		

Finished count 60x54

Other Romaine Construction

48 in. in width; 52x44

Warp: 150-den. dull acetate rayon	} 14/16	1S
100-den. dull viscose rayon crepe, 55 turns	} turns	1Z
Filling: 100-den. dull acetate rayon	} 14/16	All S
75-den. viscose rayon crepe, 57 turns	} turns	twist

so timed that the reed is ¼ in. past the front center position when harnesses are level. Likewise, every precaution should be taken not to damage the yarns during weaving, or the woven fabric. Shuttles should be carefully polished. Shuttle tensions must be smooth. Use of only three rings has been found to yield good results. Shuttles furred with opossum, with hairs pointing toward the shuttle mouth, have been found satisfactory.

Shuttle boxes and raceplates should be lined with plush or corduroy. This will save the shuttles, and also help to prevent cut picks, broken picks, and stripped filling. Sandrolls, other than those with rubber or cork coverings, can well be covered with cheesecloth in order to prevent damage to the cloth.

Weave-room humidity should be about 65%. In weaving this romaine, selvages should weave taffeta. This will make sure each pick is firmly held, and will eliminate the possibility of filling loops which might result if the romaine weave were used for both body and selvage.

FINISHING. The most important operation in finishing romaines is the boil-off. Failure to set the fabric properly in the boil-off will ruin the cloth beyond hope of repair. Originally, romaines were carefully handled in the skein form. Today every up-to-date dyehouse has some type of continuous machine. The method of processing with one type of continuous boil-off machine which gives excellent results is as follows:

The cloth is first rolled up on a shell. From there it passes into a wetting-out box which is equipped with several scrimp rolls; here the fabric is wet out under a slight tension. This slight tension, aided by the scrimp rolls, serves to hold the cloth at full width and free of wrinkles during the initial wetting out. In this way, any tendency toward breaks is overcome. The cloth is gently pulled from the wetting-out box by conveyor belts. The speed of the conveyor belts should be so adjusted that no wrinkles get into the fabric before it reaches a cascade or geyser located at the top of the entry end of the boil-off box.

The geyser consists of a series of inclosed baffle plates having an opening which slants downward slightly towards an entering slot to the boil-off box. The boil-off solution is forced under high pressure through the geyser. This large volume of boil-off solution traveling at a high velocity catches the cloth as it leaves the conveyor belts and forces it through the entry slot. Due to the large volume of water and the resulting strong downward current, there is no possibility of the material becoming wrinkled. The fabric is fed through the slot at such a rate that it automatically loops itself over moving rods in the boil-off box. The buoyancy of the cloth causes it to float just enough so that it barely rests on the moving rods. As a result, the cloth is pulled through the boil-off liquor without any tension, either widthwise or lengthwise. The absence of tension allows the romaine to attain its maximum natural shrinkage during the time it is in the boil-off box.

The cloth is pulled out of the box at the delivery end by a draw roller and drops between two cold-water spray pipes into a small, open box where it is immersed for a short time in cold water. The cold spray sets the fabric, and the subsequent cold-water rinse removes any excess boil-off solution. The fabric is pulled out of the cold-water box by a plaiter, which folds the fabric onto a truck or table.

The boil-off liquor is generally maintained at a temperature of approximately 200° F. by means of closed coils. The liquor level is just above the rods over which the fabric is looped. Pumps circulate the liquor from the boil-off box through the geyser and thence back to the boil-off box. The same type of bath used in the older method of boiling-off in skein form is satisfactory; a pH of 10.2 will prove adequate for romaines.

A somewhat different type of continuous-boil-off machine which is also suitable for use with romaines and other combination-yarn fabrics was described in the March, 1941, issue of TEXTILE WORLD. This machine is also designed to prevent cracks and breaks in the fabrics and to obtain full, natural shrinkage.

Romaines are usually dyed on reel machines. The pieces are sewed end-to-end before dyeing. Hand stitching should not be used, due to the long breaks which nearly always result on hand-stitched pieces because of the tension lines going from the slightly uneven hand-sewn stitches. Sewing machines do away with this type of break, but are difficult to keep in good running order under the very wet conditions existing in most dyehouses. Recently a small, inexpensive clipping machine has been introduced for the purpose.

The dyeing itself must be done at a slightly lower temperature (about 180° F.) than is used for the boil-off; otherwise breaks will result, due to further shrinking while the cloth is in rope form. It is advisable to enter the fabric in the dyebath at a temperature of 80 to 90° F. and gradually increase it to 180° F. over a period of 40 min.

The older methods of applying finishing oils for softening purposes in a two-roll mangle have been obviated by adding one of the newer quaternary amines to the last rinse in the dyehouse, and then framing the cloth to width. Romaines and other combination-yarn fabrics must be centrifuged very lightly if mechanical breaks are to be avoided. In a few instances romaines are decatized before they are given the final inspection prior to shipment.

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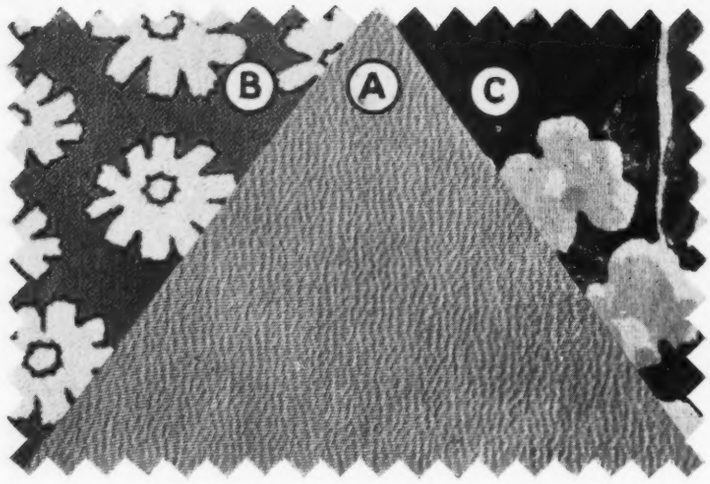
About This and Following Articles—

Up-to-date methods of manufacturing and finishing seven types of continuous-filament and spun-rayon fabrics slated to sell in large volume during the coming months are described in this and the following four articles. Packed with valuable information which will aid mill men to produce these fabrics most efficiently, these "how to" articles were prepared under the direction of our technical editors with the cooperation of several regular contributors to TEXTILE WORLD who are actively engaged in the fields of designing, throwing, spinning, weaving, and finishing.

CREPES & SHEERS



Crepes and sheers are two classes of fabrics which have much in common, both as regards methods of production and consumer popularity of the fabrics in their ultimate form as women's dresses. One of the particular problems concerned with their production is control of uniformity of pebble. Another is throwing the fine, single-end yarns used. In finishing the crepes, the major precautions to be taken are in the gray embossing operation which precedes the boil-off.

THROWING yarn for the sheers and crepes under consideration is similar in that both involve the twisting of single ends of filament rayon, but there is considerable difference in the details of handling each.

The simplest appearing, yet in many ways the most difficult, is the filling yarn in the Canton Crepe (*A*). Here the throwster's special problem is to obtain strictest uniformity of pebble.

Not all 100/60 viscose yarns give the same character of crepe when thrown the same way, and in some cases it is difficult to reproduce a particular pebble when yarns are changed. Assuming twists to remain the same, the throwster exercises his greatest control over the character of the crepe with the soaking bath. The old rule is the less sizing ingredient, the more is the creping power; but varying the character of the pebble is a different, although related, problem.

For best results, both as to quality and appearance, the raw yarn used should have the same initial twist direction as the crepe. Inferior yarns should not be used, because of the important part of the filling plays.

Uniformity is the keynote in all soaking procedures, tensions, and turns per inch in these crepes. Tolerances are at a minimum.

The chiffon sheer (*C*) contains one of the most difficult of single-end yarns to throw: 60-den., 60-fil. viscose. Soaking is different from that for Cantons, and follows more nearly that outlined for the crepe used in the romaine fabric already described.

This is a difficult yarn both to wind and to twist. Due to the high number of filaments, the skeins are prone to mat and, if there is insufficient initial twist, to split. This fine yarn is well adapted to running in small-package, silk-rayon throwing plants. The small package size keeps tension down, and silk operatives are used to handling fine yarns. When this fabric is made with 75/60 viscose, instead of 60/60, less defective yarn normally is found and the quality of the thrown yarn also improves. With both yarns, broken filaments and stretched yarn must be guarded against.

Throwing the warp for the cuprammonium rayon sheer (*B*) follows that for the printed chiffon just described, with a few important exceptions. First, there is a choice of raw yarn among natural skeins, pretreated skeins, and pretreated cones. In all cases the raw yarn contains little or no twist. For this reason, and because yarn of this type has a different texture, specially skilled winding operatives are required when skeins are used in the throwing operation.

Paramount in throwing cuprammonium yarns is to watch carefully all surfaces over which the yarn runs, since it cuts porcelain and even hard chrome relatively quickly. All cut parts must promptly be replaced to prevent filaments from stripping into "fluff balls." This is especially true in operations before the yarn is twisted.

Winding the no-twist yarn for this sheer requires the same care in regard to filaments stripping and guides cutting. Quilling tension need not be quite so high as with 75-den. viscose yarns, as the yarn packs well. Filling bobbins must be perfectly smooth, and the yarn should be handled with utmost care to prevent surface damage that might result in broken picks and/or broken filling filaments.

On all fine-denier yarns, which means 75 and under, light uniform tensioning is an important factor in successful throwing and winding. Again, the value of cleanliness cannot be overemphasized.

WARPING AND WEAVING. In preparing acetate warps for Canton crepes, use of a high-speed cone creel is suggested. The creel capacity determines the number of section beams to be made. However, the most advantageous manner would be six beams with 980 ends each (plus edges).

As a basic slashing solution, a mixture of 75 lb. gelatin and 2 qt. oil to 100 gal. of water is recommended. Speed can be kept at 30 yd. per min. as long as yarn reaches the loom-beam dry.

Quetsch pressure should be held at 700 lb., with stretch of 6½ to 7%. It is important that the slasher be geared sufficiently low that normal piecing-up of broken ends can be done without stopping the machine. This will prevent burning of yarn and formation of size-marks.

In weaving, generally speaking, the same precautions as mentioned for the taffeta are necessary, except in so far as shuttle tension is concerned. Here use opossum fur with the hairs pointing towards tips of quills. Tension rings are also used, and careful adjustment is needed to make certain all weave-room shuttles have the same tension. Humidity of approximately 58% is recommended.

Defects to be guarded against are starting marks, loose picks, and pulled-in filling.

In warping both the all-rayon chif-

CONSTRUCTION *(of fabrics shown at left)*

CREPE (A)

40/3/1x49 in. in reed; 41 in. finished; 62 pick wheel

Warp: 100/40 dull acetate rayon 2½ turns Z

Filling: 100/60 bright viscose rayon, 58/60 turns 2S, 2Z

Finished count 120x64

Other Crepe Constructions

46 in. wide; 92x84; *Warp:* 150-den. dull acetate rayon; *Filling:* 150-den. viscose rayon crepe 2S, 2Z

46 in. wide; 96x48; *Warp:* 150-den. dull acetate rayon; *Filling:* 200-den. viscose rayon crepe 2S, 2Z

45 in. wide; 114x64; *Warp:* 100-den. dull acetate rayon; *Filling:* 150-den. viscose rayon crepe 2S, 2Z

(Many crepes are made with viscose rayon in both warp and filling)

CUPRAMMONIUM RAYON SHEER (B)

55/2/1x46 in. in reed; 39 in. finished; 88 pick wheel

Warp: 75-den. cuprammonium rayon crepe, 57½ turns 2S, 2Z

Filling: 75-den. no twist, cuprammonium rayon

Other Cuprammonium Rayon Sheer Constructions

50/2/1 x 46 in. in reed; 39 in. finished; 100x72; *Warp:* 75-den. cuprammonium rayon crepe, 57½ turns 2S 2Z; *Filling:* 75-den. no-twist cuprammonium rayon

50/2/1 x 46 in. in reed; 39 in. finished; 100x80; *Warp:* 75-den. cuprammonium rayon crepe, 57½ turns 2S, 2Z; *Filling:* 100-den. no-twist cuprammonium rayon

VISCOSE RAYON SHEER (C)

45/2/1x50 in. in reed; 42½ in. finished; 70 pick wheel

Warp: 60/60 bright viscose rayon, 55 turns 1S, 1Z

Filling: 60/60 bright viscose rayon, 55 turns 2S, 2Z

Other Viscose Rayon Sheer Constructions

39/2/1 x 49 in. in reed; 80x72; *Warp and filling:* 75-den. viscose rayon crepe

48 in. wide; 90x80; *Warp and filling:* 75-den. viscose rayon crepe

46 in. wide; 104x72; *Warp:* 75-den. viscose rayon crepe; *Filling:* 75-den. no-twist viscose rayon

fon and the cuprammonium rayon sheers, utmost care must be exercised to prevent tight ends. A medium-sized package on bobbins is to be preferred, since too large packages sometimes cause overstretching of yarn due to package weight. Warping can be done either on a direct warper or horizontal frame.

Loom timing should be on front center. Drop wires should be permitted to walk freely to reduce accumulation of broken fibers.

Moderate shuttle tensions are the rule. Three rings with one pin removed will be enough. Fur in shuttles should be well trimmed, so that no long hairs can get tangled with the yarn. Too large packages or too long quills for the filling should be avoided. Other than the above few suggestions, preparation of looms for sheers is the same as for the Canton crepe fabric, as already described.

In weaving the cuprammonium sheer, time the loom on front center. Use a very soft shuttle tension and line shuttles with muskrat fur, with hairs reversed. This cloth may have a tendency to crease on the cloth roll, and it is advisable, therefore, to insert a short piece of beaming paper every 8 to 10 yd. Be careful that the selvages are not too heavy, otherwise they will build up faster than the ground and cause bad wrinkles along the edges of the fabric. Relative humidity of 60% is suggested.

FINISHING. The initial step in finishing acetate-viscose crepes is gray embossing to bring out and set the pebble and to prevent pebble irregularities. This operation calls for a number of precautions if irremediable damage to the fabrics is to be avoided. First, the gray goods must be beamed up so that the filling is parallel to the embossing roll when the cloth enters the nip; crooked filling will cause uneven creping.

Second, a sufficient tension should be used to keep out wrinkles, but the cloth should not be overstretched; excessive tension during embossing is likely to cause an open cloth.

Third, enough live steam should come into contact with the fabric just before the nip to help make it more plastic; the additional moisture will permit the cloth to take the embossing impression without cutting the yarns or fusing them; insufficient moisture will cause an open cloth because the fibers will tend to fuse, rather than become plastic under the embossing roller. Fourth, the roller should be tested before it is actually put to use in order to make sure that the pressure on both sides is even; this is done by passing a sheet of tissue paper through the nip and examining it before running any cloth.

Acetate crepes are scoured and dyed by methods similar to that for acetate-viscose shantungs, as described on page 107.

The chief precaution necessary is to keep the alkalinity of the scouring solution below 10.4 to prevent saponification of the acetate.

After dyeing, blouse-finish crepes are Palmered and then decatized. Dress-finish crepes are passed through a two-roll mangle into a loop dryer. Framing completes the finish. If additional softness is required, the fabric is sometimes subjected to a cold calendering operation.

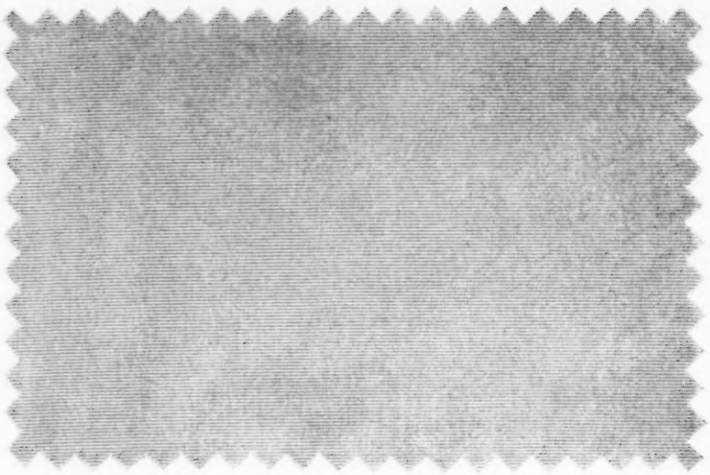
Sheers of either the viscose or the cuprammonium type are wet out in the full width, rope scoured, and then dyed on a reel machine. Before scouring, sheers occasionally are given a preliminary treatment at full width in a 2% solution of caustic soda at room temperature. However, unless a very high degree of creping is desired in the finished fabric, the caustic treatment is omitted.

During the last few years there has been a growing trend toward use of formaldehyde-aftertreated direct dyes, rather than developed dyes, for discharge ground dyeing. At present there is a serious shortage of formaldehyde, which threatens to become worse before it becomes better. Since there is also a shortage of developers, such as beta naphthol, the dyer has once more been forced to find substitutes. Addition of acidic inorganic salts such as aluminum actetate, zinc sulphate, etc., to the last rinse following dyeing will help prevent the bleeding of most direct dyes.

A similar procedure may be followed by the printer. That is, when direct dyes have been used for dyeing the ground shades, mark-offs may be prevented by adding ¼ oz. of zinc acetate per gal. to the final rinse in the print washer. Since there may be shortages of aluminum and zinc salts, it may be necessary to experiment still further to find substitutes for these materials.

In printing, excessive tension must be avoided; otherwise the pattern will be distorted after finishing. Care must be taken to prevent shirring. After printing, steaming, and washing, sheers are dried, framed and calendered. Plain-dyed goods are centrifuged, dried, and framed after dyeing. Cuprammonium sheers often require decatizing to obtain the soft, supple feel desired. All-viscose sheers generally do not need to be decatized.

TAFFETAS



Taffetas comprise another class of fabrics whose worth has been time-tested, and whose popularity continues. Great importance is attached to careful filling winding, to proper slashing, and to maintaining smooth loom and other parts which might tend to damage the yarns or fabric. During dyeing and finishing, taffetas must be kept at open width to prevent breaks, and the alkalinity of the bath carefully controlled to prevent partial saponification of the acetate rayon.

FILLING WINDING for these fabrics is an item of major consideration. Since the filling yarn is so prominent, and since the fabrics are woven on one-box looms, utmost care must be taken in winding the filling. The cloth illustrated is made of bright acetate yarns; therefore, first-quality yarn can be assumed. That, however, does not mean that inspection for defects can be omitted. Even the slightest imperfection will show up objectionably. The fact that some defects might be in the yarn as received cannot be considered sufficient excuse to send defective material to the weave room. Nor should imperfections be added during preparation of the yarn.

The filling yarn used has low or "intermediate" twist, which means that it is subject to broken filaments, splitting, and stripping, which may be caused either by the yarn producer, the filling-winding department, or the weave-room. All yarn guides should be smooth and uncut. Yarns should not be allowed to strike equipment and, assuming use of a cone supply, single-disk tensions should not be used. This is because an accumulation between the plates might cause a release of tension which would be much more serious than would be the case of tension release between one set of plates of a multiple-disk tension. Also the single-disk tension must exert more pressure at a given point on the yarn than is necessary with multiple disks to obtain the same tension. This increases the possibility of stripping the yarn.

This matter of tension is of extreme importance. Too little tension causes the filling to leave the quill in bunches. Too much tension stretches the yarn, and always does so unevenly. Uneven tension results in shiners or filling bands.

This filling should be run knotless; even knots on supply packages should be clipped. Knots not only stand out prominently, but often cause warp defects in weaving.

As is almost always true with rayon, the yarn must be kept strictly clean. And of course, in this case as in others, attention must be accorded items which apply to all quilling, such as sufficiently long flat bunches, uniformly sized and shaped builds, smooth quills, etc.

WARPING AND WEAVING. For warping taffetas, a high-speed cone creel is recommended. If a 1,200 pin creel is available, the warp for this fabric can be made into six section beams. However, if only a 1,000 pin creel is available eight section beams will be necessary.

As 75-den. acetate will pack very tightly, only strong beams should be used to eliminate the danger of pushing the heads off. The drive drum must have a smooth and otherwise perfect covering to prevent damage to yarn when the machine stops. Guides and reeds must, of course, be in first-class condition. In slashing, section beams should be so lined up that the edges from the rear beams do not touch the flanges of the front beam. As regards the size formula, much depends upon conditions in the mill; mainly the humidity in the weave shed. As a basis from which to work, 65 lb. of gelatin and 3 qt. of soluble oil to 100 gal. of water has been found to give satisfactory results. In mills where the humidity is quite low, it may be necessary to add another 1 qt. of oil. Bath temperature should be maintained at 160° F.; cylinder temperatures should be 230°, 230°, 190° 190°, and 120°, for a five-drum slasher. Covering the first two cylinders with a medium-grade duck will help to prevent the wet yarn from sticking to the drums.

Stretch should run around 6% and can be controlled by: submerging warp more or less in bath; putting more or less tension on section beams; adjusting speed, temperatures, and beaming tension; regulation through special stretch-control unit.

Quetch pressure should be kept around 700 lb.

Speed depends mainly upon drying property of the yarn, and normally is about 25 yd. per min.

In weaving these fabrics, careful lining of boxes and raceplate is a necessity. For soft acetate warps, a good grade of plush is suggested for covering the lay, while corduroy or felt will give good results on boxes.

Timing of harness should be on front center, with a slightly loose reed. This, in conjunction with a firm warp tension, will eliminate the possibility of an overbeaten effect (teardrops) and starting marks. Both sheds should be perfectly equalized.

Smooth shuttles and absolutely even tension are of primary importance. Filling tension should be obtained through proper furring with muskrat fur, rather than by means of tension rings, as the latter might cause shiners. Improper tension is a frequent cause of shiners in fabrics of this type. This may be due to shuttles being furred too heavily, thereby imparting an uneven or jerky tension to the yarn. The least resistance to a perfect drag can

CONSTRUCTION *(of taffeta fabric shown at left)*

45/4/1x39½ in. in reed; 58 pick wheel
***Warp:* 75/24 bright acetate rayon 3½ turns Z twist**
***Filling:* 150/40 bright acetate rayon 2½ turns Z twist**
Finished count 180x60

Other Taffeta Constructions

39½ in. wide; 180x60; *Warp:* 75/24 bright acetate rayon; *Filling:* 150/40 bright acetate rayon

39½ in. wide; 180x68; *Warp:* same as above; *Filling:* 120/40 bright acetate rayon

39½ in. wide; 180x72; *Warp:* same as above; *Filling:* 100/40 bright acetate rayon

39½ in. wide; 180x52; *Warp:* same as above; *Filling:* 300/80 bright acetate rayon

(Some better-quality taffetas are made with 200 ends per in.; some all-viscose rayon taffetas are also made in the above constructions)

cause trouble. Check shuttle spindles and make certain they all point directly toward the eye in the heads of the shuttles. Low spindles should not be permitted.

Uneven warp tension is also likely to cause defective cloth, the imperfections showing up as warpwise streaks. Close examination of the fabric will usually show that the ends causing the trouble are not under the same tension as the rest of the warp. Care should be taken to remedy such faults as soon as they are discovered.

Filling cutters should cut cleanly, and operatives should be instructed to cut filling tails and not tear them off unevenly. Recommended relative humidity for the weaveroom is 58%.

Defects frequently encountered in taffetas, and which should be guarded against, are shiners, broken picks, shuttle marks, soiled filling, and starting marks.

This cloth, as well as the others discussed, is a volume article to be produced on a multiple-loom system. The fabrics therefore require careful warping and slashing, and also perfect quills. Only too often are low efficiency and poor quality blamed on the loom, although inferior workmanship in one of the preparatory departments is really the cause. Efficient management will not permit faulty quills to be sent to the loom. In the first place, such quills are quite likely to be returned for redrawing; and regardless of whether they are or not, they represent a handicap to the weaver. Modern, automatic looms will give good performance with comparatively little loomfixing, but no amount of loom repairs will improve poor yarn.

FINISHING. Acetate taffetas require careful handling during wet processing in order to avoid formation of breaks. For this reason, they are usually scoured and dyed at full width on jigs. Frequently, the gray goods contain graphite and grease stains acquired during weaving. An extremely severe scour is out of the question, since this might partially saponify the acetate. It is possible, however, to remove most stains of this nature simply by adding 1 gal. of deodorized kerosene to the scouring bath. A typical scouring bath consists of 5 lb. of soap or 2 lb. of fatty alcohol sulphate and 2½ lb. tetrasodium pyrophosphate to 75 gal. water. The kerosene is added as soon as the two detergents are dissolved. Scouring is then carried out as usual.

An excellent bleached white can be had by adding 10 to 15 lb. of sodium perborate to the scouring bath. It is advisable to divide the perborate into two equal parts, adding half on each of the first two ends. About four ends on the jig will usually be sufficient to produce a good white. When tinting is necessary, addition of ¼ to ½ gram of previously dissolved Formyl Violet S4B (C.I. 698) will usually provide enough bluing to overcome any residual creaminess left after bleaching.

Two important precautions must be observed in dyeing acetate taffetas. First, the cloth must be run so that the selvages do not overlap, but lie smoothly on one another. Overlapping results in discolored selvages. This discoloration usually appears as a dark streak running parallel to the edge and extending inwards from the latter for ½ to 1 in. Second, the cloth must be batched up evenly and smoothly, but not tightly. Tight rolls will moire the cloth and also result in a thin, wiry finished fabrics. Tension can be regulated by the proper adjustment of the tension blocks or brakes on the jig.

One method of finishing taffetas is first to frame the cloth, using as little tension as possible while framing. Acetate fabrics are weaker and more plastic when they are wet than when they are dry; and for this reason excessive tension at this time would result in a shiny, thin, and brittle fabric. If stretching were carried to extremes, the cloth would have jagged tears along the selvages.

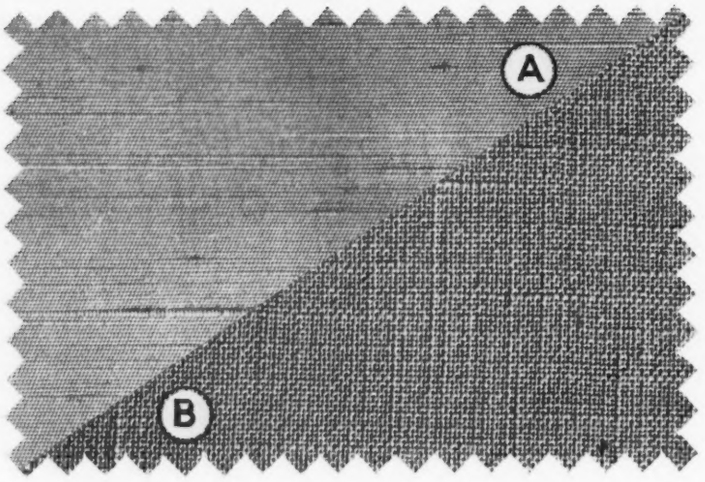
During the framing process the goods are partly, but not completely, dried. After framing, the partly dried goods are run through a two-roll mangle, where they are padded with a small amount of softener. The fabric then goes to a Palmer machine for complete drying. Here again, tension must be kept at a minimum. The steam pressure and speed on the Palmer must be so regulated that the fabric is delivered barely dry. Over-heating or baking must be avoided.

A more common method of finishing taffetas is to pass the cloth over a vacuum extractor and then dry it immediately on a Palmer unit. The latter consists of a two-roll mangle, a 30- to 40-ft. frame, and a Palmer drum hooked up in tandem. An operation can be saved by installing the vacuum extractor in place of the guide roller in front of the mangle.

Two types of finish are currently popular on taffetas. One is a natural-luster finish, which is obtained by the procedure described above. The second is a dull or chalky finish. The common way of producing the chalky finish is to mix some commercial duller and a small amount of softener in a size tank. The fabric, after drying and vacuum extracting is then passed through the mixture on two-roll mangle. Cloth finished in this way on a mangle has a tendency to be streaky. Also the fabric has a tendency to mark off; that is, a whitish streak is left if the cloth is rubbed against any stationary object.

These defects can be avoided and an improved finish obtained by giving one extra end while the goods are on the jig. When the desired shade is obtained on the jig, the bath is dropped as usual and the cloth is given one end in lukewarm water. A second end is then given in a bath containing 5 lb. of barium chloride crystals per 75 gal. This is dropped and a final end is given in a bath containing 10 lb. of anhydrous sodium sulphate. The fabric will now be definitely dull and chalky, but the pigment will be deposited uniformly and permanently both on and in the fibers. The dulled fabric is next put through the Palmer unit as described previously. The mangle can be filled with water to remove any excess pigment from the surface of the cloth. As a final operation on taffetas, a cold calendering is sometimes necessary to give the desired finish.

SHANTUNGS & LINEN TYPES



Shantungs and Linen-types are two types of spun-rayon fabrics which are scheduled to retain, and perhaps increase, their popularity in forthcoming months. It is important in preliminary processing to use machines which beat the rayon as little as possible. In roving and spinning care should be taken that tints from the stock do not decrease the operating efficiency of leather top rolls. The warp sizing operation demands careful attention. As shantungs and linen-type fabrics usually are employed for sportswear, they should be dyed with colors which will not bleed or fade when the garments from which the fabrics are made are washed under normal conditions.

CARDING AND SPINNING. The following organization is satisfactory for making 12/1 slub yarn from 1 9/16-in. staple for the linen-type fabric: 12-to 14-oz. lap; 55-grain card sliver; 55-grain first drawing, six ends up; 60-grain second drawing, six ends up; 0.50 hank roving on slubber; 1.00 hank roving on intermediate, feeding two ends; 2.60 hank roving on speeder, feeding two ends; and double roving fed on spinning frame. When a long-draft slubber is used, 2.60 hank roving can be made.

For making 15/1 flake yarn from 3-in. staple, used as filling in the shantung sample, the following changes should be made in the above organization: 1.10 hank roving on the intermediate, feeding two ends of 0.50 hank roving; and 3.00 hank roving on the speeder, feeding two ends. The 3.00 hank roving can be made on a long-draft slubber.

In opening rayon staple, a series of two or more hopper feeders is advisable; it is advantageous to use in conjunction with the hoppers an opener that utilizes air and very light mechanical action. A straight-line arrangement consisting of hopper, opener, hopper, and picker is satisfactory and eliminates much handling; tint should be applied through a spray in the top of the second hopper.

In a hopper, shafts which drive the lattices and strippers usually are exposed next to the sides of the machine. Staple works over the sides of the lattices and strippers and wraps around the shafts, and can cause the shafts to overheat to the point of catching fire. To prevent shafts loading up with staple, cuffs should be put over the shafts, or the accumulated fibers should be removed every 8 hr.

The flakes in the 15/1 filling in the shantung can be made by cutting card sliver in $^3/_8$-in. lengths; also they can be purchased already cut to length. Flakes and staple should be weighed in quantities to make 100-lb. lots; and when placed on the apron behind the first hopper, the staple should be spread out evenly and the flakes scattered smoothly on top.

Picker laps can vary from approximately 12 to 14 oz., the weight depending upon mill requirements for balancing the machinery. Kirschner beaters operate safely at 600 r.p.m. and lower, and Buckley beaters can be used at speeds of 800 to 1,000 r.p.m.; blade beaters tend to injure the fibers and their use should be avoided. Beaters can be set 3/16 in. from the feed roll; wide settings create a tendency for the beater to fan the ends of the fibers back under the bottom roll, causing lap-ups. A split-lap preventer consisting of metal fingers extending to the bite of the top calender rolls, along with maintenance of humidity at 50 to 55% and control of air from the fan, almost eliminates split laps on the cards; the air current should be directed on the top screen.

On cards, the following settings are recommended for both staples: feed plate, 17; licker-in to cylinder, 7; back plate, 30 to 31; doffer, 7; comb, 12. Flats to the cylinder should be set at 10 for the 19/16-in. staple, but for the flake mixture the flats should be set $^1/_8$ in. or more from the cylinder to prevent removal of short fibers; under such conditions, the flats can stand still. Lickerin speeds above 300 r.p.m. are likely to result in injured fibers; common speeds used on cotton can be used for other parts, with the exception that the flats should move $1^1/_2$ in. per min.

Roll settings on drawing frames should be $2^1/_4$, $2^3/_8$, and $2^1/_2$ in. when running 1 9/16-in. staple; on 3-in. staple it is necessary to remove the third top roll and set the others at $3^5/_8$ and $3^7/_8$ in., unless long-staple frames are used. Front-roll speeds can be 300 to 350 r.p.m. The 60-grain sliver on second drawing should be run with the same settings and speeds.

Slubber speeds should be limited to 200 r.p.m. of the front roll. Roll settings on slubbers should be 5/16 and 7/16 in. above the staple between first and second, and second and third rolls respectively when producing 0.50 hank roving. Where rolls will not open wide enough to accommodate the 3-in. staple, it is necessary to remove the middle top roll and to do all the drafting between front and back rolls; the setting on this should be $3^3/_8$ in. New long-staple machinery, of course, is designed to handle 3-in. staple without resort to such makeshift methods; also, several manufacturers are marketing long-staple roll stands that can be applied to existing frames.

Intermediates producing 1.00 and 1.10 hank roving from two ends of 0.50 hank roving operate well with rolls set 3/16 and 5/16 in. above staple length; if it is necessary to remove the middle top roll, a single setting of $^1/_2$ in. above staple is satisfactory. Front-roll speeds on intermediates should not be over 180 r.p.m.

CONSTRUCTION *(of fabrics shown at left)*

SHANTUNG (A)

48/2/1x42 in. in reed; 39 in. finished; 46 pick wheel

Warp: 200/52 dull acetate rayon, 2½ turns S
Filling: 15/1 (c.c.) viscose rayon staple flake yarn, 14/16 turns Z

Finished count 96x48

Other Shantung Constructions

43½ in. wide; 120x48; *Warp:* 150-den. dull acetate rayon; *Filling:* 14/1 (c.c.) spun viscose rayon

41½ in. wide; 108x50; *Warp:* Same as above; *Filling:* 16/1 (c.c.) spun viscose rayon

41½ in. wide; 120x64; *Warp:* 120-den. dull acetate rayon; *Filling:* 30/1 (c.c.) spun viscose rayon

42½ in. wide; 135x56; *Warp:* 100-den., 100 fil. pigment viscose rayon; *Filling:* 24/1 (c.c.) spun viscose rayon

LINEN-TYPE FABRIC (B)

20/2/1 x 41½ in. in reed; 37¾ in. finished; 38 pick wheel

Warp and filling: 12/1 (c. c.) bright viscose rayon staple flake yarn, 16/18 turns Z

Other linen-type constructions

40½ in. wide; 66x46; *Warp:* 30/1 bright viscose rayon staple flake yarn; *Filling:* 20/1 bright viscose rayon staple flake yarn

40½ in. wide; 66x52; *Warp:* same as above; *Filling:* same as above

40½ in. wide; 68x62; *Warp:* same as above; *Filling:* same as above

40½ in. wide; 64x60; *Warp and filling:* 24/1 dull viscose rayon staple flake yarn

41½ in. wide; 28x28; *Warp and filling:* 35/1 dull viscose rayon staple with 23 turns Z twist, and 16/1 bright viscose rayon staple flake yarn with 15 turns Z twist, plied with 8/10 turns Z twist

Tint from the staple will gradually discolor leather top rolls; and with discoloration, will come an increased tendency for the rolls to pick up fibers. The picked-up fibers are released back into the work, causing flakes and slugs in the yarn. The simplest cure for this is to use a long-napped clearer cloth. If oil is applied with the tint, the accumulation of oil on leather top rolls is a cause of frequent lap-ups. The cure is frequent varnishing of rolls.

A speeder producing 2.60 to 3.00 hank roving should not operate above approximately 150 r.p.m. of the front roll; settings for 1 9/16-in. staple should be 1 11/16 and 1 13/16 in.; on 3-in. staple, settings of 3⅛ and 3¼ in. are correct. If the 2.60 and 3.00 hank roving is produced on a long-draft slubber directly from drawing sliver, the front roll should not turn faster than 135 to 140 r.p.m., and the settings should be ⅛, 5/16 and 7/16 in. above staple length.

The yarn in the linen-type sample contains slubs which were produced on the spinning frame by an attachment that periodically speeds up the back rolls, causing short lengths of undrafted roving to pass through the rolls. The length of the slubs is controlled by raiser links on an endless chain; a single raiser makes a short slub, and two or more consecutive raisers make longer ones. The slubs in the filling of the shantung are composed of bunches of short fibers, which hang together, making heavy places.

WARPING AND WEAVING. In warping spun-rayon yarns on high-speed warpers, tensions must be carefully adjusted to avoid excessive end breakage. Likewise, there must not be too much tension on the section beams, but only enough to keep the ends tight. The secret of good weaving on spun rayons is a well-sized warp.

Two types of warp sizing compounds are in common use—gelatine-base sizes and starch-base sizes. In addition, there are a number of prepared sizes on the market which give excellent results. One such prepared size which gives satisfactory results on warps for linen-type fabrics consists of 3:1 mixture of starch gum and technical gelatine, together with a softener, hygroscopic agent, and preservative. The size bath is made up with 40 lb. of the prepared size to 100 gal. of water; size-box temperature is 150° F.

Warps for shantungs can be sized in a similar manner, but usually require a somewhat higher concentration of size. A typical formula consists of 50 lb. of technical gelatine (200- to 240-gram gel strength) and 20 lb. of sulphonated oil softener to 100 gal. Another consists of 50 lb. of a prepared size plus an additional 25 lb. of a sulphonated tallow softener.

One of the major precautions to be taken in sizing spun-rayon warps is to avoid over-drying; otherwise the yarn may become brittle and weaving efficiency impaired.

With a properly made and well sized warp, one should be able to weave these fabrics at a speed of 176 picks per min.; and, with a loom load of 36 to 40 looms per weaver obtain a loom efficiency of 90 to 95%.

Loom adjustments necessary are discussed on page 109.

FINISHING. Shantungs and linen types are wet out on a full-width continuous unit and then scoured on rope scouring machine. Fabrics containing acetate—either in the warp or filling—must be scoured at a lower pH (10.4 maximum) than are all-viscose rayon fabrics. These two types of fabrics frequently contain loom stains when they arrive at the dyehouse. However, a simple means of removing loom grease stains is to emulsify 1 gal. of kerosene by pouring it into a pail of 5% soap solution. This emulsion is then added to the scouring liquor (1,000 gal.), and the cloth is scoured as usual.

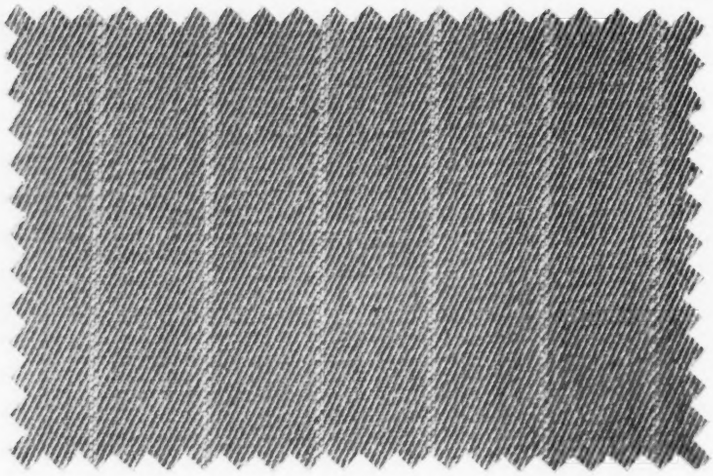
Dyeing of shantung and linen-type fabrics offers little difficulty. When the cloth is constructed of two different fibers, like acetate and viscose, there is one necessary precaution. The dyer must choose dyes for both fibers that change in the same way in artificial light. That is, a fabric in which the color of both fibers appears identical in daylight must also appear identical in artificial lighting. Dyes must be selected which will withstand washing at 120° F. without bleeding or fading.

Linen-type fabrics are finished in a similar manner to tropical suitings (see next article) except that they are not decatized. Some few mills have no vacuum extractors. In such cases, the cloth must be centrifuged. This may cause sharp crack marks on a heavy linen-type material. The latter can be minimized by running the fabric quickly through a Palmer unit. In this way, the cloth is sized and partially dried. The material is then fully dried on a loop dryer. A final framing completes the finish. Linen-types should not be completely dried on a Palmer, due to the flat, lustrous fabric obtained.

Shantungs, with few exceptions, are finished on a Palmer unit. To overcome the tendency of these fabrics to be over-lustrous, shantungs are given the barium chloride treatment in the dyehouse mentioned under the finishing of taffetas.

Better-grade fabrics are given an anti-fume finish. The finish mentioned under tropical suitings can be modified and used on shantungs by adding 1 qt. of 75% sulphonated oil and 2 qt. of duller and omitting half the chlorinated starch. A light calendering completes the finish.

TROPICAL SUITINGS



Tropical Suitings for men, comprised of rayon and wool blends, offer new possibilities for textile mills. Blends containing a majority of rayon, with a relatively small wool percentage, are produced on the cotton system; those in which wool is the major component are better adapted to the worsted system. So far, however, cotton mills seem to have taken the lead in utilizing rayon in men's wear fabrics of this type. Therefore, a fabric produced on the cotton system was chosen for description in this article.

As noted in the fabric layout appearing elsewhere in the article, the fabric contains 80% of rayon and 20% of wool. Special care should be taken in preliminary processes to insure even blends of the two fibers, and in spinning to obtain uniform yarn. Adjustment of the looms when changing from cotton to spun-rayon blends is important. Chief aims in finishing are to obtain a wool-like appearance and handle and good fastness to light and perspiration.

CARDING AND SPINNING. For producing the 35s rayon-wool yarn used in this fabric, the following organization is satisfactory: 12½oz. lap; 55-grain card sliver; 55-grain first drawing, feeding six ends; 60-grain second drawing, feeding six ends; 0.50 hank roving on slubber; 1.30 hank roving on intermediate, with two ends fed; 4.50 hank roving on the speeder, feeding two ends; and double roving fed on the spinning frame. The 4.50 hank roving can be made on a long-draft slubber directly from drawing sliver, but a more even yarn will probably result if 1.30 hank roving is made on this machine and the 4.50 hank roving is made on a speeder.

Wool can be purchased already cut to length, or it can be bought in top form and be cut at the mill. The rayon and cut wool should be weighed in amounts to make 100-lb. lots of the blend. The opening equipment described in the article on linen-type and shantung fabrics will also do a good job of opening and blending rayon and wool mixtures. When weighing out a mix, one should weigh the wool first so that it will be in the bottom of the box; later, when the mix is placed on the apron behind the first hopper, the rayon will be on the bottom and there will be less danger of the two fibers separating.

Tint can be applied by spray in the second hopper. The fugitiveness of each tint to be used should be tested by processing a small sample of the mixed staple at approximately 1½ times the concentration to be used in production. When the tinted sample is soaked for 10 min. in a 3% soap bath at 180° F., all tint must be removed; otherwise, the tint should be considered unsafe.

Three-denier staple, blended or 100%, runs well on cards with the following settings: feed plate, 17; lickerin to cylinder, 7; back plate, 34; flats, 7 to 10; doffer, 7; comb, 12. The doffer comb must be set high to keep the web tight, and its speed should be reduced to prevent "fanning"; the air current from combs operating at normal speed tends to fan the fibers from the doffer a short distance below the comb. Frequently it is necessary to place a pan under the web to prevent sagging. Such a pan should be made of perfectly smooth metal or composition and should lead the web to the trumpet.

Card speeds should be as follows: lickerin, 300; cylinder, 165; doffer, 9; flats, 1½ in. per min. The screens and mote knives under the lickerin should be removed and replaced with sheet metal. This will prevent removal of much of the short wool fiber that results from cutting. The short fiber produces a fly that is difficult to control and sometimes makes necessary screening-off of the cards which are running wool mixtures. Wool fly in otherwise 100% viscose or acetate staple will cause many headaches in the subsequent dyeing of a fabric.

If the screens under the cylinder are not set correctly, the fibers which are not removed from the cylinder by the doffer will tend to blow out at the sides of the machine. The following settings will allow the fibers to ride around the cylinder without blowing out: front point of the front screen ¼ in. from the cylinder; joining of front and rear halves of the screen, 0.064 in., and the back of the screen, 0.019 in.

On drawing frames, roll settings should be $\frac{3}{8}$, $\frac{13}{16}$, and $\frac{15}{16}$ in. above staple length. Front-roll speed can be 300 to 350 r.p.m.

Front-roll speeds on roving frames should be approximately those stated in the article on linen types and shantungs, and the settings of rolls should be as follows: slubber, $1\frac{3}{8}$ and $1\frac{7}{8}$ in.; intermediate, $1\frac{1}{2}$ and $1\frac{7}{8}$ in.; speeder, $1\frac{5}{8}$ and $1\frac{3}{4}$.

Settings of spinning rolls, where a slip roll is used, should be 1¼, and 1½ in. Spindle speeds can be as high as 9,000 or 10,000 r.p.m., but will vary with local conditions.

The twist-against-twist in plying makes it necessary to use as light a traveler as possible. Traveler weights will vary with different speeds and with the size and condition of the rings, and should be judged by the balloon of the yarn around the bobbin. It is hardly practical to attempt to build a hard or firm twister bobbin.

WARPING AND WEAVING. Due to the fact that they are plied and have a high twist, warp yarns employed in tropical suitings do not have to be sized. However, some mills believe that a light

CONSTRUCTION *(of suiting fabric shown at left)*

28/4/1x43 in. in reed; 39 in. finished; 56 picks
Warp: **35/2 (c.c.) rayon-wool blend, 80/20% 22 turns S twist in the ply**
Stripe: **150/40 bright acetate rayon, 3 turns S**
Filling: **35/2 (c.c.) rayon-wool blend, 80/20% 22 turns S twist in the ply (16/18 turns Z twist in the single)**

Other tropical suiting construction

22/4/1 x 45 in. in reed; 39 in. finished; 50 picks; *Warp and filling:* 40/2 (c.c.) rayon-wool blend 80/20%, 25 turns Z twist in single, 25 turns S in ply

sizing is advantageous. The same types of sizes mentioned under linen-type fabrics are employed. A typical formula consists of 15 lb. of a prepared size plus an additional 5% of a sulphonated oil softener; size-box temperature is maintained at 150° F. Over-drying of the warp on the cans should be guarded against.

When changing from cotton to spun-rayon fabrics, one will find that a number of loom adjustments are necessary to prevent weaving defects and lowering of loom efficiency. Following are some of the more important changes necessary when changing over:

(1) Cover raceplate with either plush or corduroy. (2) Inspect shuttles once a shift and remove all rough places; after sandpapering a shuttle, polish it with shellac and oil, rubbing in briskly. (3) Before furring shuttles, comb out fur and cut off all long hairs so that fur is of uniform thickness; on hard-twist yarns fur should extend the full length of the quill to prevent yarn kinking; on soft-twist yarns the fur should be about three-fourths the length of the quill on the back of the shuttles; one-half on the front. (4) When furring shuttles never have the grain on both pieces running the same way, but place one with the grain forward and the other with it backward, according to the way the filling comes off the bobbin. (5) Adjust tensions so they will work freely to take up the slack in the yarn when the shuttle enters box. (6) Make sure the reed cradles are not tight, but have a certain amount of play. (7) Make sure the reed is in perfect alignment to allow shuttle to run true. (8) The shed should be adjusted so that it is just large enough for the shuttle to pass through without touching the ends; it should never be too low on the raceplate. (9) Care should be taken in setting picking motion to get as light a pick as possible; this can be done by the proper adjustment of binders, which should hold the shuttle in the center.

FINISHING. Procedures employed in finishing men's tropical suitings made on the cotton system from rayon-wool blends have not yet been standardized, and changes in and modifications of methods now employed can be expected as more experience is gained in processing these fabrics. Following is a typical present-day routine:

Usually tropical suitings are boiled-off at full width to avoid breaks in the finished material. Sharp cracks which are set in the cloth by the boil-off are practically impossible to remove. A large proportion of this type of material is boiled off in the skein form. The resulting cloth is free of cracks, except for a diagonal break which occurs at the inner stitch mark where the skein is tacked to prevent unraveling while it is being scoured. Use of the continuous boil-off method described for romaines will avoid break marks and permit higher production at a lower cost.

With few exceptions, suitings are dyed on reel machines in rope form. Light fastness and perspiration fastness are the two most important factors for the dyer to consider. Usual practice today is to use fast direct or after-treated colors for the rayon and fast neutral-dyeing acid colors for the wool. Practically all neutral-dyeing acid colors stain acetate fibers slightly and leave viscose clean. Again, most acetate dyes stain wool fiber heavily, and also stain viscose rayon. Fast direct dyes sometimes dye wool, as well as viscose. As a rule, acetate is left unstained by the latter. When the acetate is to be dyed a deep contrasting shade, such as a deep-green pencil stripe on a soldier blue ground, the acetate is dyed first. The fabric is next treated with a cold or lukewarm hydrosulphite solution to clear the viscose and wool fibers. The latter two are then dyed to shade. Conversely, when the acetate is to be dyed a pastel shade, or left as white as possible, the wool and viscose are dyed first. The acetate is then cleaned by giving the cloth a wash in hot salt water.

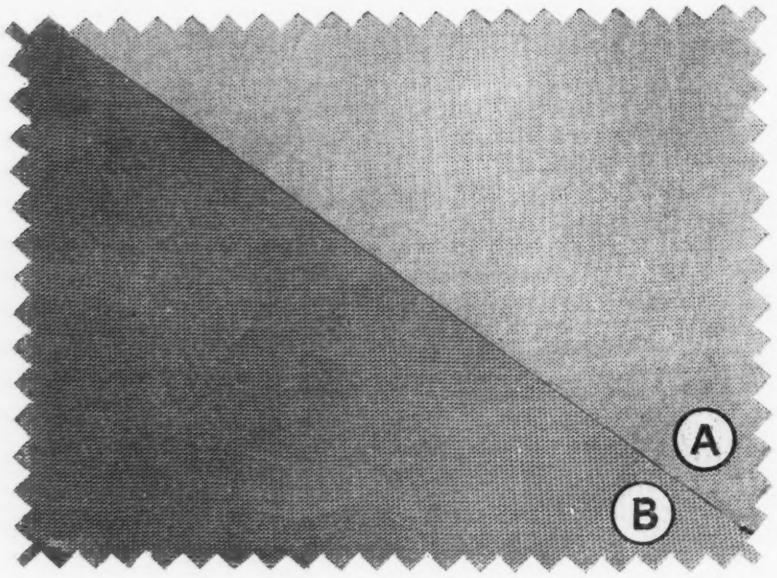
Under present conditions, it is essential to combine as many operations as possible. To this end, a modern dyehouse will load five pieces of cloth (about 350 yd.) into a deep truck. The ends of the pieces are left hanging over the sides of the truck. After the cloth has drained for several minutes in the dyehouse, so as not to flood the finishing-room floor, the truck is pushed to a sewing machine. Here the material is sewed into a continuous strand, with end-cloths attached.

A streamlined finishing room will have the following equipment arranged in tandem. First, a scutcher or opening device will be placed directly in front of a two-roll mangle. The latter will have a vacuum extractor attached so that it may be used as a tension bar. This is placed in front of the expander, which should be on every mangle to prevent wrinkles from entering the nip. The vacuum-extracted cloth goes through the mangle, where it is sized, and then proceeds directly to a loop dryer. A similar Palmer unit may also be used for some types of fabrics. To avoid excessive and undesirable luster, it is necessary to have the face of the fabric in contact with the Palmer blanket, and not with the Palmer drum.

After drying, the cloth is framed and decatized. The final decatizing assists in giving the desired wooly feel and appearance. It also assists in setting the fabric so as to preclude any excessive shrinkage later.

One fault in many suitings is the tendency of the acetate toward gas fading. This is accentuated by the fact that many suitings are resin finished. To overcome this tendency, better-grade fabrics are given an additional finishing process before framing and decating. This consists of a second passage through the mangle using an anti-fume finish. It is not feasible to combine the acid resin finish with the alkaline anti-fume finish. However, a satisfactory substitute can be made on better-grade goods containing 20% or more of wool by using a size made up with 2 lb. chlorinated starch (medium thick boiling), 4 lb. 40% formaldehye, 1½ lb. borax, and 20 lb. sodium thiosulphate crystals to 50 gal. of water. This barely alkaline (pH 8.5) finish will produce a full-bodied cloth wtih a woolly feel and will afford protection against normal gas fading.

RAYON UNDERWEAR FABRICS



RAYON UNDERWEAR undoubtedly will be in greater demand than ever before because of the ban on use of silk for civilian purposes. Just at present, however, knitters of rayon underwear fabrics are finding that one of their most serious problems is that of securing an adequate supply of yarn. Technical problems in knitting are few; but in finishing, several precautions are necessary if defects are to be avoided.

Of the two fabrics illustrated, the white sample, *A*, which is a men's underwear cloth, contains about 5 sq. yd. per lb., and is knitted with approximately 45 courses and 40 wales per in. The women's wear fabric, *B*, which has been dyed a flesh color, is lighter in weight, containing approximately 5¼ sq. yd. per lb. This cloth is knitted with approximately 40 courses and 30 wales per in. Both fabrics are made of 150-den. viscose rayon.

Given smooth, even yarn, machines properly set up for the various designs wanted, and a system which assures maintenance of equipment in first-class mechanical condition, there will be little or no trouble in producing first-quality fabrics. On the other hand, if lumps or uneven places occur in the yarn, press-offs may take place. These, if not properly repaired before the fabrics are sent to the dyehouse, may break during dyeing and cause considerable trouble. Again, if machines are not kept in good mechanical condition, stitch defects may appear in the cloth.

In finishing the men's wear fabric, a suggested procedure is to make up a scouring bath containing 2% soda ash and 1% of one of the synthetic detergents. The cloth is then scoured for 30 min. at 180° F. In the case of rayons which have a higher oil content, it may be advisable to add 1% of sodium pyrophosphate, which will make the calcium and magnesium salts soluble. After scouring, flood the bath for about 5 min., then drop. Next, give the cloth a cold rinse.

For bleaching, use of regular strength hypochlorite (15° Bé.) is suggested, in the ratio of 6 qt. per 100 lb. of cloth. Run cloth for 1 hr. at 110° F.; drop the bath; neutralize with cold sodium bisulphite for 5 to 10 min.; flood the bath; give the cloth a cold rinse; and blue if necessary.

In dyeing the flesh-colored women's wear fabric, the procedure is similiar in most respects to that already described. In the one-bath method, the dye kettle is first filled with cold water, then the cloth is loaded. The necessary dyes are next added, followed by the chemicals required. For this fabric, the following are suggested: 1% of a synthetic detergent, 1 to 2% tetrasodium pyrophosphate, and 15% soda ash.

After the chemicals have been added, the bath is gradually brought up to 180° F., or to 212° F. if necessary to achieve even application of dye. Increases in temperature should always be made slowly to prevent streaks and blotches. Approximately 25 min. should be taken to bring the bath up to 180° F. After running for 30 min., take a sample. If the cloth is not up to shade, make the necessary add, and continue dyeing. If glauber salt is used to exhaust the bath, care should be taken to make the add slowly and evenly to prevent formation of streaks.

When dyeing acetate rayons by the one-bath method, a suggested procedure is to make up the bath with 3% of sulphonated olive, castor, or similar oil; and ½% of soda ash; followed by the necessary dye. Dyeing should be continued for 1 hr., to make certain that level colors are obtained.

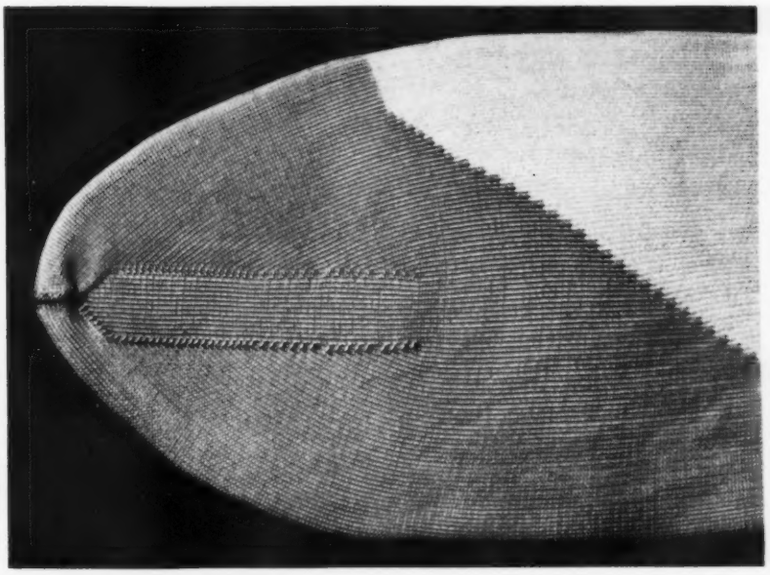
In dyeing knitted underwear fabrics, it is desirable that all pieces in a kettle be approximately equal in length, say about 120 to 150 yd. A piece markedly shorter than the others in the bath would, naturally, be carried around by the reel a greater number of times, and would, therefore, tend to take up more dye.

After removing pieces from the bleaching or dyeing machine, the various strings are sorted into individual boxes, so that all pieces of the same diameter will be together. They are then run on to a range dryer and finisher. Here the fabrics are first spread to the proper width. The 5-yd. cloth should be spread 2 in. over the diameter at which it was knitted; the 5¼-yd. fabric, 3 in. over. Too much spreading is to be avoided, as it will cause shrinkage during future laundering. Heavier fabrics should not be spread as much; in fact, they are sometimes finished the same diameter they were knitted, or even less.

After spreading, excess water is removed by running the cloth through a pair of squeeze rolls. The fabric is then weighted; softened; and sometimes sized and/or dulled. A 5% weighting with a urea-formaldehyde compound is usual. For softening, a touch of sulphonated tallow, olive oil, or cation-active softener can be added. When it is desired to reduce the sheen of a fabric, 3 to 4% of a clay dulling agent can be added.

Drying is a continuous operation, with temperatures ranging from about 290° F. at the entering end, down to approximately 180°. Depending on the weight of the cloth, speeds of from 10 to 30 yd. per min. can be obtained satisfactorily. Steaming, followed by a jet of cold air and rolling up, completes the processing of the fabrics.

KNITTING NYLON HOSIERY



BY WILLIAM T. LEGGIS

NYLON differs so greatly from silk in both chemical and physical characteristics that throwsters, knitters of full-fashioned hosiery, and hosiery dyers have had to develop new procedures. Throwing of Nylon requires special equipment, an air-conditioned plant, and competent supervision. Dyeing and finishing call for use of procedures and chemicals far different from those employed for silk hosiery. Many changes from the usual manner of knitting are necessary, and below are described those methods which the writer has found to be most suitable for knitting women's Nylon full-fashioned hosiery.

Due to the water-soluble characteristics of the compound used in the sizing of Nylon, it has been found that the cones of yarn previous to knitting must be stored in a dry room, the average temperature of which is around 70° F. Relative humidities above 45% cause the sizing material to soften and result in two very undesirable knitting faults. First, the softened size results in a cone of yarn which will drag and knit too tightly. Second, the softened sizing will strip off onto the needles, sinkers, dividers, narrowing points, and guides to such an extent that a very poor stitch will result. In fact, the sizing deposits will build up to such an alarming degree that the excessive press-offs will occur.

For the same reason, it is important the yarn boxes on the knitting machine also be kept dry. In order to lower the relative humidity within the yarn boxes it is sometimes helpful to place some hygroscopic material, such as anhydrous calcium chloride, in the pan of the yarn boxes where water was formerly kept for silk knitting. Another method successfully used to cut down the relative humidity is place a small electric lamp in the yarn boxes.

Nylon yarn is passed through the water troughs in much the same manner as is silk. It has been the experience of most knitters that a suitable trough oil, containing a proper balance of penetrant and softener, will materially improve the knitting qualities of Nylon yarn by preventing the building up of sizing deposits.

TO PREVENT PRESS-OFFS due to the sticking of the yarn to porcelain eyelets and guides when certain carriers are not in motion for several minutes, many mills have found that it is advantageous to pull through all ends before they are brought into play.

When the standard all-steel-brass welt bars are used for Nylon knitting, bad pineapple stitches are likely to result. This distortion can be overcome by replacing the steel plates with aluminum. This change reduces the weight of the bar by approximately 35%, and clears up the distorted stitches. Also, it is necessary to maintain considerably less tension on the take-up roller than is necessary for silk. A Nylon full-fashioned construction should be started with approximately one-half the weights used for silk and end up with but little more than the weight holder.

It is important to note that Nylon hosiery shrinks considerably during the preboarding operation. Therefore, allowance must be made in the knitting for this shrinkage. A Nylon stocking knitted 52 courses per inch will finish to approximately 55 to 56 courses per inch. Hence, in order to knit a stocking which will finish to the proper length, the same number of total courses must be put into the stocking, but the Nylon leg stitch must be knitted approximately four courses per inch looser than is normal for a silk yarn of approximately the same denier. This procedure results in a stocking which is approximately 2 to 3 in. longer in the gray than is normal for silk hosiery.

If single-unit constructions are not used, it is necessary that the ravel courses be of the split type, knitted of either silk or cotton. If the split type of ravel course of another fiber is not utilized, considerable difficulty results, due to runs from the ravel courses.

The special precautions necessary for legging are equally necessary in the footing operation. For example, footer sizes must be approximately ¾ to 1 in. larger than the corresponding silk foot size. This extra fabric is necessary to compensate for the shrinkage during preboarding. In addition, it was found that the customary footer hooks used by many mills were too large and actually left a permanent distortion in the instep and the heel tabs. Smaller hooks or clamps remedied this fault.

The customary boning equipment used for silk is not applicable to Nylon. If a heated metal boning rod is not utilized, the boning line closes up within a short period of time, making the topping procedure difficult. However, it should be emphasized that a heated boning rod must be of a satisfactory type; otherwise there is danger that the Nylon fabric will become permanently distorted or even destroyed by melting.

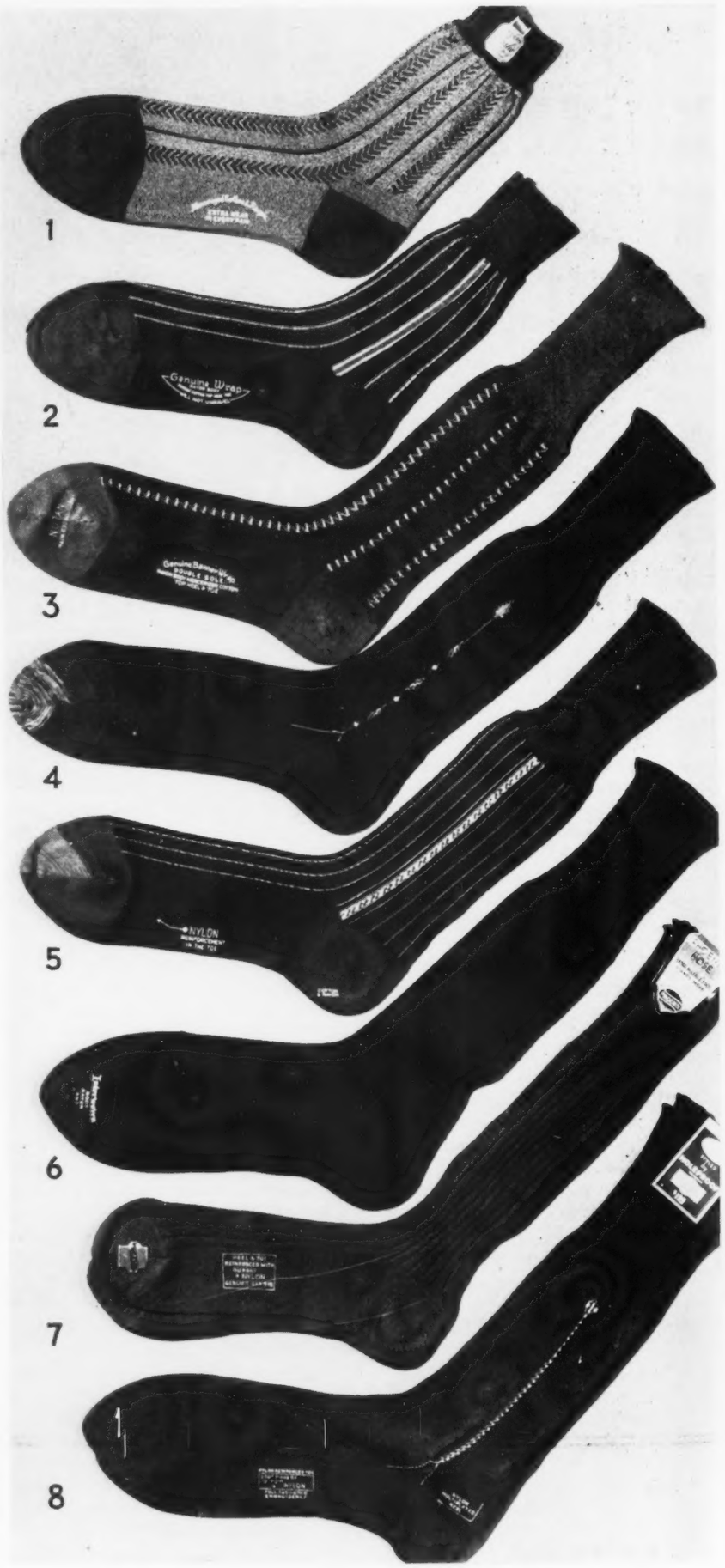
In order to minimize looping runbacks it is well to knit looping tabs at least ¾ in. long. The same looping equipment as used for silk is entirely satisfactory. The one adjustment necessary is to tighten the stitch and lengthen the chain about ¼ in. as a precaution against raveling.

The same general equipment used for seaming silk is also adaptable for Nylon. However, the stitch must be loosened in order to allow for the contraction during preboarding.

Half-Hose Styles

By JOHN BLACK

HALF-HOSE STYLES illustrated on this page are indicative of current trends in use of rayon and Nylon. Influence of the defense program is reflected in designs of a definitely military nature—chevrons, wings, and other insignia. Nylon-content numbers range from socks with Nylon simply for heel and toe reinforcements to others which are practically all-Nylon. Original thinking is evident in designing of styles embodying two or more fibers, such as acetate rayon, cotton, and Nylon. Among colors favored are reds and browns in various shades; two-tone patterns are popular, and are especially successful in the chevron motifs; stripes range from fine lines to broad bars and combinations of thick and thin stripes. Anticipated future trends include even more extensive use of synthetics and more vigorous promotion of Nylon.



1. Military note is featured in this chevron-and-stripe design on mercerized cotton and rayon anklet with elastic top. Courtesy Hanes

2. Novelty anklet with rayon body; Durene top, heel, and toe; and elastic top. Courtesy Hanes

3. Novelty Banner Wrap half-hose with rayon body; mercerized cotton top, heel, and toe; and Nylon toe reinforcement. Courtesy Belmont

4. Clock pattern wrap-stitch half-hose with acetate rayon body, cotton top and heel, and Nylon toe cap. Courtesy Scott & Williams

5. Thick and thin stripes in a novelty half-hose with rayon body, cotton and rayon heel, cotton top, and Nylon reinforced toe. Courtesy Westminster

6. Staple half-hose number, the body of which is a mixture of Nylon and rayon. Courtesy Interwoven

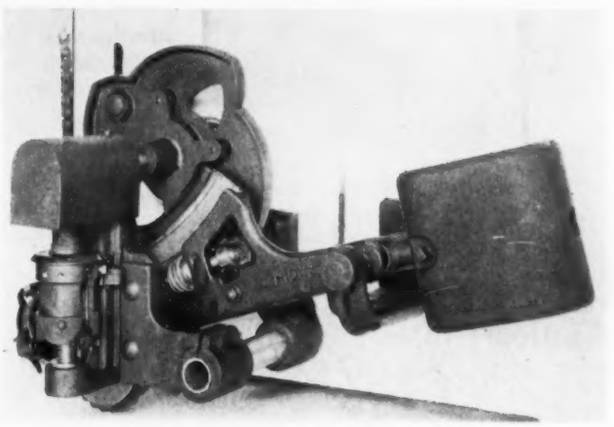
7. Fine mercerized cotton 6 x 3 rib half-hose with Nylon reinforced heel and toe. Courtesy Phoenix

8. Clocked full-fashioned half-hose; Nylon is used for the body of the sock, and also for the reinforced toe and the multi-plated heel. Courtesy Holeproof

TEXTILE EQUIPMENT NEWS

Bunch Builder

A bunch builder for spinning frames, said to be simple in design and positive in action, has been announced by Whitin Machine Works, Whitinsville, Mass. Outstanding features of the device cited by the manufacturers include the following: (1) A uniform bunch that will not sluff off; (2) a uniform bunch regardless of doffing point; (3) positive control of yardage in the bunch; (4) control of width and location of bunch; (5) covered or exposed bunch, as desired; (6) operation with either direction of cam rotation; (7) ready application to all types of Whitin builders.



Bunch builder for spinning frame (Whitin)

In operation, when the frame is started after a doff, a cam is automatically lifted into working position and held in place by a latch; a bevel gear is also brought into mesh with a driving gear. The bunch builder then commences operation. The starting position of the bunch builder, and therefore the yardage of the bunch, is determined by the location of a stop screw, which can be placed in one of a number of holes located in the upper portion of the bunch cam.

Three different bunch cams are available, by means of which different sizes and types of bunches can be built. One has several scallops in its contour and produces short, compact bunches. Another, with fewer scallops, produces medium-sized bunches, slightly more spread. A third has only one long scallop and produces a closely wound but long bunch.

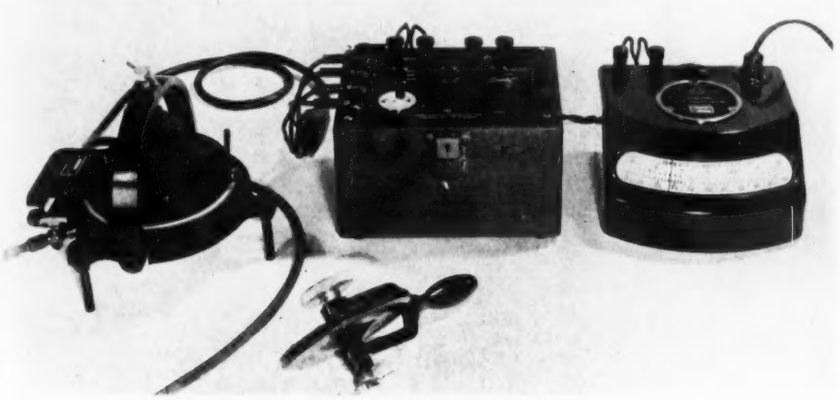
In application, the bunch builder can be attached either to the head end of the spinning frame, or a fixture can be supplied for floor mountings. The head-end mounting, however, is said to tend to provide more perfect alignment, and to keep the floor free of obstructions which might hinder cleaning.

For Testing Fabric Permeability to Gas

To provide an accurate, rapid, and convenient means for production testing of the permeability of fabrics which are to be inflated with hydrogen, helium, carbon dioxide, etc., a new instrument known as a fabric permeater, has been developed by Cambridge Instrument Co., Inc., Grand Central Terminal, New York. Rate of permeation through a fabric is said quickly to be determined by utilizing the thermal conductivity method of gas analysis. As used on balloon fabrics and other materials, it is said also to enable testing for the effectiveness of various "dopes" or other finishing compounds with which fabrics are treated.

In use, samples to be tested are clamped between two recessed plates, thereby forming upper and lower compartments separated by the fabric being tested. Gas is passed into the lower compartment; the upper compartment which is served with clean, dry air, communicates with the metering unit. Gas which permeates through the fabric contaminates air in the upper compartment and thus changes its thermal conductivity; a measure of the rate of this contamination provides a measure of the ability of the fabric to hold gas.

Uses cited for the device are in testing fabric for lighter-than-air craft, fabric life rafts, life jackets, gas masks, lacquers and chemicals for impregnating textiles, etc.

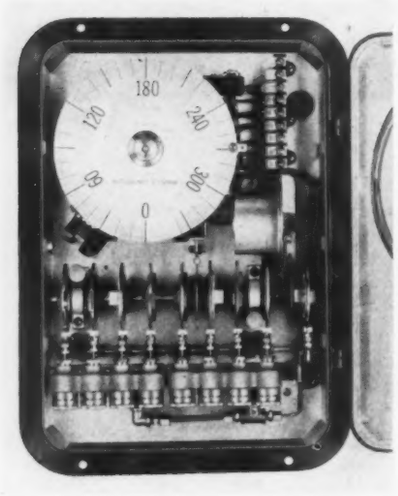


Gas permeability tester (Cambridge)

Time-Cycle Controller

Announcement of the development of a new multiple-cam time-cycle controller for timing mechanical operations in industrial processes has been made by Bristol Co., Waterbury, Conn. The device, designated Model A-118, is designed for use in processes where a number of factors must be accurately timed according to a fixed program. In operation, the controller actuates or engages, at exactly the correct time in each cycle, the necessary mechanical, electrical, or pneumatic devices for automatically carrying out the intended schedule.

Timing is accomplished by a Telechron-driven disk on which is printed a time scale. The desired schedule of operations is incorporated into the controller by punching holes on the time scale. The location of these holes determine the time of operation of the cam mechanism. The disks for new cycles or schedules of operation can, it is said,



Time-cycle controller (Bristol)

be easily made. The manufacturer states cams are individually adjustable, and that their setting does not require fine adjustment in order to get accurate results.

To Prevent Pulley Slippage

Preventing pulley slippage is the purpose of a pulley and V-belt-sheave covering compound which is applied with a brush to the pulley, much like paint. It is said to dry quickly, and give an adhesive, but not sticky, surface which eliminates belt slippage, allows belt to run slack and easy, reduces wear on belts and journals, and increases power efficiency. The preparation is said to be very durable and one application to last for from one to two years. The material is a product of Warren Pulley Cover Co., Danielson, Conn.

Lubricating System

A lubricating system which, from one central point, is said to deliver a predetermined quantity of lubricant to from three to 20 bearings, and which incorporates a visible indicator which signals the operator when the job is completed, has been announced by Alemite Division, Stewart-Warner Corp., 1852 Diversey Parkway, Chicago. It is stated that on equipment which involves a larger number of bearings, the lubricating systems can be employed in relays, each system or relay lubricating the maximum of 20 bearings. Any type of manually or power-operated high pressure grease gun can, the manufacturer states, be used.

Featured is the simplicity of installation of the system, which is said to have been designed expressly for large-scale industrial lubrication jobs. It is pointed out that all bearings in one piece of equipment can be lubricated simultaneously from one central point, that inaccessible or dangerously located bearings can be conveniently lubricated at will, that lubricating can be done while machines are operating, and that lubrication of complete machines is considerably speeded up.

Uniform-Tension Unwinder

Positive means for insuring continuous uniform tension on a roll of textile fabric or other material being unwound from the parent roll is the purpose of a new uniform-tension unwinding machine announced by Johnstone Engineering & Machine Co., Downingtown, Pa. Incorporation of an automatically-operated hydraulic brake is said to insure constant, uniform tension under all conditions, regardless of the speed or diameter of the roll being unwound. When pull on the roll is strong, it is stated, the brake friction is released slightly and, when pull lightens up, more friction is applied. All this is said to be accomplished almost instantly and entirely by the machine, without any attention from the operative.

A "nerve roll" which actuates the braking mechanism operates in a loop of the unwinding material. It is roller-bearing mounted in horizontal tracks to permit free lateral movement, forward and back, yet always parallel with the other rolls in the machine. Springs or weights regulate the pull of this roll against the loop of the fabric, and this adjustable pull controls the tension.

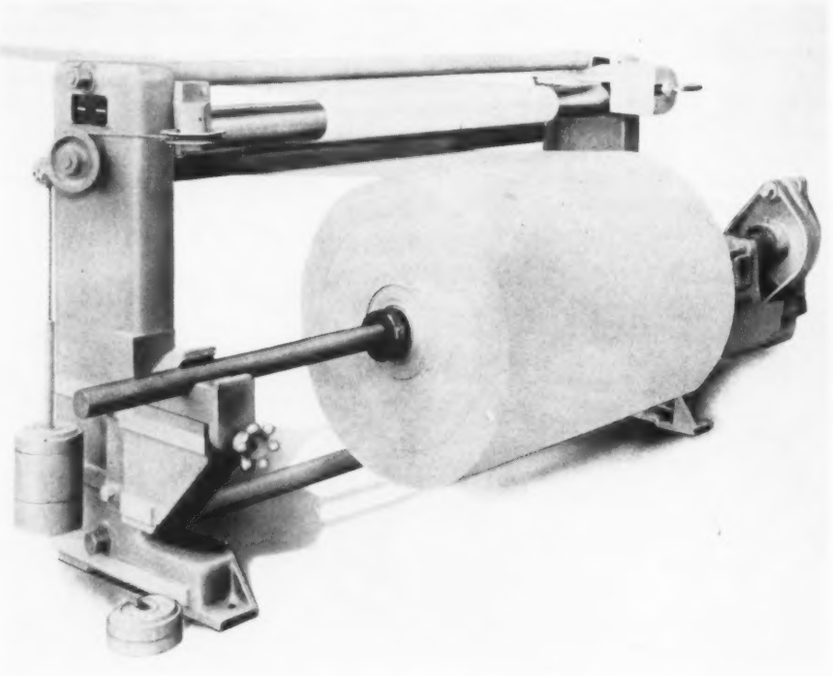
New Type V-Belt Construction

V-Belts designed around a new type of cog construction principle on the inner surface of the belt, said to provide greater flexibility and longer belt life when flexing around small pulley diameters, and to apply the scientific principle of increasing traction by means of a non-skid design, are being introduced by Dayton Rubber Mfg. Co., Dayton, Ohio.

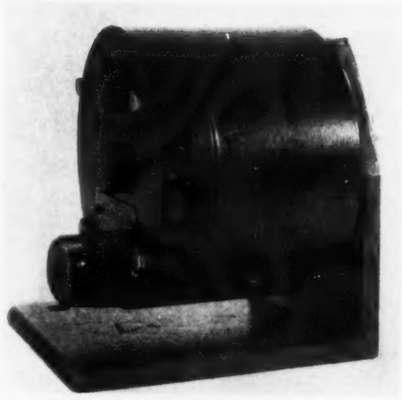
The cog construction is said to provide greater grip and less slip on smooth, flat pulley surfaces. Likewise, when riding in grooved pulleys, the new belt is said to give greater gripping power, with die-cut raw edge sides which it is stated present the same undistorted driving surface to the pulley, regardless of side wear.

Electric Tachometer

For use in measuring revolutions per minute, feet per hour, or other factors, in textile and other manufacturing operations where rotating equipment is used, a new a.c. tachometer has been announced by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Known as Type A-80, the techometer consists



Uniform-tension unwinding machine (Johnstone)



Electric tachometer (Westinghouse)

of an a.c. generator, and a voltmeter of the rectifier type. No brushes or commutator are used in the generator, which is of permanent magnet, a.c. inductor type. To insure permanency of calibration, magnets are made of high-grade magnet steel and carefully aged.

The rotating element consists of laminated iron keyed to a rust resisting steel shaft. The alternating voltage is rectified by a Rectox unit in the voltmeter calibrated in r.p.m., feet per minute, hour, or other units.

Although it is stated the best generator speed is 1,000 r.p.m., the tachometer is recommended for operation over a range of from zero to 5,000 r.p.m.; this range may be obtained, if necessary, by suitable pulleys, gears or sprockets.

Pump Design Changes

Design improvements said to eliminate hydraulic losses in pumps and thereby increase efficiency as much as 10 percent, are now included in all sizes of vertical turbine pumps produced by Pomona Pump Co., Pomona, Cal., according to recent announcement by the manufacturer. Fundamental design changes in the guide vanes, function of which is to alter from horizontal to vertical the flow direction of fluids being pumped, are cited.

Whereas previously these vanes were constructed as thin as possible on the advance edge, engineering studies indicated that by forming these advanced vane ends of a bulbous shape, greater uniformity of flow pattern could be secured, friction reduced, efficiency of fluid lift increased, and development of eddy currents eliminated. In addition, the new design is said to permit high efficiency to be maintained over a broader range of capacities than heretofore possible, and to give the redesigned parts increased strength.

The manufacturer states that by substitution of a new bowl assembly, the new design can be incorporated in pumps already installed.

Useful Accessories for Textile Mills

An aluminum paint substitute, known as Light Gray Totrust, for outside or inside use, has been made available by Wilbur & Williams Co., Park Square Building, Boston. It is said to look like aluminum paint, have approximately the same light reflection, and to be effective in stopping rust at its source.

A 1,200 volt transformer designed for low voltage, outdoor metering service, is being introduced by Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa. Known as the WO-1 dry-type current transformer, it has three ratings, 200/5, 400/5, and 600/5 amp.

A single-pipe system said to make positive, forced-feed centralized lubrication almost universally applicable, has been announced by Trabon Engineering Corp., 1814 E. 40th St., Cleveland. It is said to discharge a known and measured quantity of lubricant direct to bearings; capacity or volume of the different sections of the same distributor may vary from 0.005 cu.in. to 0.035 cu.in.

Longer-wearing valve stems made of a new self-lubricating alloy known as Hancodur, are announced by the Hancock Valve Div., Manning, Maxwell & Moore, Inc., Bridgeport, Conn. It is stated stems made of the material have a tensile strength of 90,000 lb. per in., plus high self-lubricating characteristics.

Cement floors with holes, ruts, and worn places, are said to be readily and quickly repaired with Floor-Patch, a new development of Truscon Laboratories, Detroit, Mich. Featured are its non-shrink characteristic, adaptability to quick repair work, and resistance to wear.

Pre-cast bronze alloy bearings, backed with steel, and thin walled, have been announced by Johnson Bronze Co., New Castle, Pa. Although originally developed for bearings, it is stated the material has been adopted by industry for many other uses.

Control of temperature, pressure, rate of flow, or liquid level, in a desired ratio or differential to another related variable, is the purpose of a new instrument offered by Taylor Instrument Cos., Rochester, N. Y. Ratio can be changed by simple adjustment throughout the range of 0:1 to 3:1, direct or inverse. It is said to be unnecessary to disturb the processing or remove the chart plate while making ratio adjustments.

Direct reflector lamps with built-in reflector units in the form of solid silver linings hermetically sealed inside the bulbs, in sizes from 100 to 1,000 watts, and in voltages from 220 to 300, are a new product of Wabash Appliance Corp., 335 Carroll St., Brooklyn, N. Y. The same firm has designed a floodlight which delivers a concentrated flood of light in a medium beam. It is said to be especially effective in applications requiring intense illumination for exacting work. The unit is made in sizes from 100 to 300 watts, and voltages from 110 to 125.

Fluorescent fixtures featuring instant starting; high power factor; elimination of starter plugs, relays, corrector condensers, etc.; and use of incandescent lamps for ballast, thereby converting to light all current consumed, have been announced by Setchell Carlson, Inc., St. Paul, Minn.

A strip-chart recorder of new design is now offered by Bristol Co., Waterbury, Conn. Changes in construction were made on the case, chart drive, measuring elements, and writing mechanism. The instruments are available for recording, on 6-in. strip charts, d.c. volts and millivolts, d.c. amperes and milliamperes, pressure, liquid level, flow, temperature, motion, and for remote recording.

A generator-voltage regulator of indirect-acting rheostat type, designed for automatic voltage control of medium and large size a.c. generators in central stations, and for synchronous motors and condensers, is announced by Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa. A feature cited is its high-speed action time of 3 cycles after a voltage change. This and its ability quickly to force the exciter field to its limit is said to make it suitable for quick-response systems.

Two fluorescent units for industrial use, one a 2-lamp 100-watt, and the other a 2-lamp 40-watt, with removable porcelain or baked enamel reflectors and ends open or closed, have been announced by Garcy Lighting Co., 4224 Lincoln Ave., Chicago.

A tabulating machine which automatically punches data in cards in conformity with pencil markings on the cards has been announced by International Business Machines Corp., 590 Madison Ave., New York. The machine utilizes the principle of the electrical conductivity of a soft pencil mark.

New Dyes and Chemicals

General Dyes

General Dyestuff Corp. announces the following new products: Acid Cyanine BFA, an acid blue of good fastness to light; Diamine Bronze Brown PEN, a direct color, which produces tone-in-tone effects on cotton-rayon fabrics, and which is also recommended for dyeing cotton-wool unions; Diazo Brilliant Orange GRN Extra, a developed color which produces bright reddish shades of orange when diazorized and developed with Developer AMS, and bright shades of golden orange with Developer ZA.

Synthetic Detergent

Triton 720, a new synthetic detergent, has been announced by Rohm & Haas Co., Philadelphia. The new product is described as an aqueous paste of a sulphonated ether salt. Advantages cited for it include the following: (1) eliminates scouring or kier boiling of certain rayon and cotton fabrics, and may be applied in the desizing bath or it may be padded on separately, thus eliminating the intermediate scouring process; (2) addition to printing pastes assists penetration and produces sharper prints; (3) used with soap in the final bowl in wool scouring, it improves the appearance and physical characteristics of the wool, making it whiter and loftier and more easily rinsed; (4) in combination with ammonium bifluoride removes greasy iron spots from rayon and other fabrics.

Indicator for Textile Fibers

Colortex B, a universal indicator for textile fibers, has been announced by Neuberg Chemical Corp., 441 Lexington Ave., New York. Colortex B is supplied in 1-oz. bottles ready for use. Samples of fibers are immersed in liquid, allowed to stand for 3 to 5 min., rinsed, passed through a dilute solution of ammonia, rinsed, dried, and compared for shade with a color chart supplied for use with the indicator. Colortex B is said to be superior to the well-known indicator Neocarmine W, no longer obtainable here.

New Publications

Masefield's Personal Experience as a Mill Hand

IN THE MILL, by John Masefield: The MacMillan Co., New York: $2.00.

When John Masefield was a youth he abandoned the life of a seaman and settled down at Yonkers, U. S. A., where for two years he worked in the plant of Alexander Smith & Sons Carpet Co. The primary reason for the change was his embryonic urge to write. Away from the toil of the sea with its unexpected contingencies, he found the routine of the carpet mill one which gave him time to think, enough cash to eke out a living and to buy the few books he needed for study. There for a time Masefield was torn between his urge to write and a newer ambition to advance in the mill, and the chapters in which he describes his life in the carpet plant are filled with the feeling of unrest dominant in a young man trying to find his niche.

After months he found himself thinking more of England than of his job, and his one consuming desire was to go home, home to England, for he finally realized he could never really work or live away from there. So his love for his native land crystallized the direction of his career.

To one who knows the grime and bustle of Yonkers of today, Masefield's descriptions of the surrounding country of nearly half a century ago fill one with nostalgia for any place of beauty upon which industry and city have encroached and finally enveloped. And that a man with the soul and heart of a poet found beauty and inspiration to create beauty seems remarkable in factory surroundings, but after all, so is Masefield.

We all know of Masefield's success in the field of literature. Some of that success is explained through this beautifully written book of his two years as a factory hand.

History of Carpet Industry

THE AMERICAN CARPET MANUFACTURE, by Arthur H. Cole and Harold F. Williamson: Harvard University Press, Cambridge, Mass.: $3.50.

The authors found that, previous to their investigation, the economic history of carpet and rug manufacture in the United States had been largely unexplored, and they have now very completely filled the gap. They trace the rise of the carpet trade from the home industries of the late eighteenth century into the early factory period of the 1830's, and then forward to the present day through the numerous technical advances which crowded the last half of the nineteenth century. The latter part of the book covers the current organization of the industry, its labor situation, markets and marketing, and the competitive situation. Useful tables and charts are given, and instructive analysis made of the various economic factors observed. A. H. Cole is the author of a number of previous books, including "The American Wool Manufacture" published in 1926.

Guides To Fashion Careers

HELP WANTED—FEMALE!: by Margaretta Byers: Julian Messner, Inc., New York: $2.50.

HOW TO BE A FASHION DESIGNER: by Gladys Schultz: Robert M. McBride & Co., New York: $2.00.

Certainly to a young lady with the career bee in her bonnet the second largest industry in the country offers boundless enticement. Dangling lucrative plums of fame and fortune, the business of creating and distributing "fashion" gives women more scope for their talents—more excitement and more fun—than any other field of endeavor today. Designed to give girls "leads" in preparing for fashion careers, both of these new books succeed admirably in laying the groundwork for the girl who has her eye on a niche in the fashion industry.

"Help Wanted—Female!" is at once a carefully-prepared analysis of the numerous jobs available in fashion, a splendid guide to the recognition of an individual's talents and a down-to-earth adviser on how one can go about making the most of those talents. Mrs. Byers believes that the budding fashion genius should be so well aware of her aptitudes that she'll head straight for the job she adores and that unless she does so from the start, she may waste years in finding her "Better 'Ole." And she intends that her book help "the right girl to find the right job." One of the best features of the book (for parents, too) is an appendix of thumb-nail sketches on some 34 progressive schools that specialize in academic—and sometimes apprenticeship—training for careers in fashion.

Written in sub-deb language and breezily twirling the lingo of Seventh Avenue and Uptown Fifth Avenue,

"How To Be a Fashion Designer" is sure to appeal to the young girl. For girls "majoring in pins and needles," his book tells spicy picture-stories of "how dresses are born" . . . how some of the importants in fashion made their "names" . . . how the designer, the retailer, the fashion press, function! It also gives tips on schools, and stresses the importance of a liberal arts college background. In its refreshing, youthful attitude one can detect the very sparkle that keeps the fashion business alive.

A Compendium of Commodity Statistics

COMMODITY YEAR BOOK—1941: Commodity Research Bureau, New York; 636 pages; $7.50.

This volume gives basic statistics on 72 commodities, of which seven are of immediate textile interest. The data will answer most questions regarding price, production, consumption, etc., in considerable detail from 1920 to 1940 and further back in many cases. For example, the annual average price on spot cotton goes back to 1791.

Each major commodity has its own chapter preceded with an editorial survey which analyzes trends and conditions. The book closes with several general tables on money, prices, industrial activity, car-loadings, national debt, etc. A detailed index makes the contents readily accessible.

An introduction draws parallels between current wartime behavior of commodities and that back in 1914 to 1918 and later under influences of World War No. 1.

How to Profit in Exports

MONEY IN EXPORTS by Walter Buchler; Useful Publications, 524 Mansion House Chambers, London, E. C. 4, England; $3.00.

This volume by an authority on world trade should aid those who may be seeking export business since it indicates the characteristics, methods, preferences and pitfalls of the major markets. The material is grouped by continents and countries. Mr. Buchler has personally visited most of these countries covering 50,000 miles in four years and he knows whereof he writes from first hand experience. He has been a contributor to TEXTILE WORLD.

What Records to Preserve

PRESERVATION OF BUSINESS RECORDS by Ralph M. Hower; Business Historical Society, Boston.

This pamphlet has just been reissued in revised form for the fourth time. It supplies the answers to the following questions which the executive may ask: *Why* should business records be preserved? *What* material should be selected for preservation? *How* should records be preserved? *When* should preservation be undertaken? It sets up a schedule which can be put into effect economically by most firms to preserve their most important records. It is available for free distribution.

News of Suppliers

Sonoco Products Co., Hartsville, S. C., has purchased the Carolina Fiber Co., also of Hartsville, effective as of Nov. 1. Carolina Fiber Co. was one of the first paper mills established in the South, and is said to be the first mill to manufacture paper from southern pine. It was established in 1890 by Major James Lido Coker, who was also the founder of Sonoco Products Co. Sonoco, with branch plants in five cities, manufactures a complete line of paper carriers, cones, tubes, cores, spools, etc., for the textile industry. It produces all its paper requirements in its own paper mills, and the additional capacity from Carolina Fiber Co. assures adequate future supplies of paper board. Portion of the latter company's product will continue to be sold to its present customers.

Crompton & Knowles Loom Works, Worcester, Mass., won first place for safety in competition with middle-size foundries throughout the nation last year, according to the annual report of the National Safety Council, Chicago. The plant had only one injury for the entire year, classified as a temporary disability injury.

E. H. Jacobs Mfg. Co., Danielson, Conn., has purchased 16 acres of land just outside the city limits of Charlotte, N. C., on the Southern Railway. Construction of two one-story fireproof buildings, each with about 10,000 sq.ft., will be started immediately. One of the buildings will be used to supplement the manufacturing facilities of the present plant of E. H. Jacobs Mfg. Corp., Dowd Rd., Charlotte, N. C., while the other will be used for the storage of hickory and other hardwood to be manufactured into various products of E. H. Jacobs Mfg. Corp. such as picker sticks, skewers, binders, etc.

R. B. WICKHAM, superintendent of the West Point Power Co., Langdale, Ala., standing at the door of the new building recently completed by the power company at Langdale.

Textile Industry Research, Inc., New York, which, during its one year of activity in this country, has been serving textile mills in the South and New England as consulting and developing engineers, is now also offering its service for dyeing, finishing and printing plants, as well as for the establishment of a power and heat economy system.

Aridye Corp., Fair Lawn, N. J., has begun a plant expansion in Rock Hill, S. C., to triple the present warehouse space and double the laboratory facilities. The expansion is necessitated by the growing use of the Aridye process for printing and padding, and the in-

COLUMBUS (Ga.) IRON WORKS CO. is distributing the following timely poem:

"Keep your temper, gentle sir,
Writes the manufacturer,
Though your goods are overdue,
For a month or maybe two,
We can't help it; please don't swear,
Labor's scarce and steel is rare,
Can't get rivets, can't get dies,
These are facts, we tell no lies.
Johnny's drafted, so is Bill,
All our work is now uphill,
So your order, we're afraid,
May be quite a bit delayed,
Still you'll get it, don't be vexed,
Maybe this month, maybe next,
Keep on hoping, don't say die,
We'll fill your order bye and bye."

creased demand for pigment colors to be applied in printing and padding by other methods. Some manufacturing operations are contemplated in Rock Hill, after the completion of the addition.

Emmons Loom Harness Co., Lawrence, Mass., and Charlotte, N. C., has appointed Leo Lenk as sales agent in Mexico for all Emmons products. Mr. Lenk already represents a number of U. S. manufacturers of textile products. His address is Apartado 533, Mexico, D. F.

Mt. Hope Machinery Co., Taunton, Mass., is a newly formed company which will manufacture and distribute the swing guider, the American rights to which were lately acquired by Mt. Hope Finishing Co., No. Dighton, Mass. Owner and manager of the new company is J. D. Robertson, who was plant engineer for Mt. Hope Finishing Co.

Machinery Liquidating Co., New York, has appointed Thomas F. Russell, Jr., as sales and promotion manager. Mr. Russell was for the last 12 years associated with the Departmental Advertising Division of the McGraw-Hill Publishing Co., New York.

J. E. Carroll & Co., Lowell, Mass., have appointed R. J. Bigby as general manager and sales manager. Mr. Bigby was formerly with Pacific Print Works, Lawrence, Mass.

ELECTROMATIC ALL-ELECTRIC WRITING MACHINE made by International Business Machines Corp., and Miss Margaret Hamma of Brooklyn, N. Y.—This operator set a new world's all-time typing record in the 9th Annual International Commercial Schools Contest held in Chicago recently when she wrote for one hour in competition at a rate of 149 net (five-letter) words per minute for one hour of continuous typing. This rate means a pace of 13 key strokes per second.

New plant of Standard Soap Co., Camden, N. J.

Standard Soap Co., Camden, N. J., after 34 years at 1918 South Sixth St., recently removed to new and larger factory at 205 South Second St. The new building is a three-story, modern, fire-proof structure, equipped with a battery of the latest type soap-boiling kettles and other processing machinery. The company manufactures Drummond soap for the finishing of woolen and worsted fabrics. Other products include Stanso Tex oil, Stanso Pento-Tex, Stanzolene, etc.

Draper Corp., Hopedale, Mass., is about to begin manufacture of machine tools for national defense. For this work, the company will build a special four-story, steel frame and brick building. Work on tools will start early this fall.

Warwick Chemical Co., West Warwick, R. I., has transferred Donald S. Collard, for a number of years plant superintendent at West Warwick, to the company's Rock Hill, S. C., plant in similar capacity.

Air & Refrigeration Co., New York, has moved to new and larger quarters at 475 Fifth Ave.

Wheelco Instruments Co., Chicago, Ill., has moved its plant and offices into its own six-story building at Harrison and Peoria Sts., where much additional space will permit doubling its operating personnel. This is the third major expansion since the company was established in 1935.

Michigan Alkali Co., has consolidated its general sales and executive offices at the Ford Building, Detroit, Mich. An eastern branch office will be maintained at 60 East 42nd St., New York. Other branch offices are located in Chicago, Cincinnati, and St. Louis.

Foxboro (Mass.) Co., has moved its St. Louis office to the Continental Bldg., at 3615 Olive St. E. B. Miller is now in charge of this office; E. R. Huckman, previous manager being transferred to the New York territory for work in connection with the defense program. George B. Ewing, Jr., has joined the staff of sales engineers attached to Foxboro's Houston office. The company's Cincinnati office is now in its new location in the American Building, Walnut St. and Central Parkway.

Apex Chemical Co., New York, and Elizabeth, N. J., has added Bernard Rudner to its staff of research chemists. Mr. Rudner is a 1939 graduate of Lafayette with a B.S. in Chemical Engineering, and 1941 M.S. from New York University.

Aluminum Co. of America, Pittsburgh, Pa., has made a contract with Defense Plant Corp. acting for the United States for construction and operation of an alumina plant in the State of Arkansas with an annual capacity of 400,000,000 lb., and for the construction and operation of three aluminum smelting plants, one at Massena, N. Y., with annual capacity of 150,000,000 lb., another in the Portland-Oregon district with capacity of 90,000,000 lb., and a third in Arkansas with capacity of 100,000,000 lb.

Quaker Chemical Products Corp., Conshohocken, Pa., is expanding its storage and manufacturing facilities, increasing its floor space by 12,000 sq.ft. These additions will require an expenditure of about $50,000. A new department, the Hygienized Division, has been formed to cater to the fabric and apparel trades under the guidance of Larry J. Margulies. W. P.

OUR FIRST LINE OF DEFENSE IS OUR PRODUCTION LINE

A strong national defense requires diligence and skill in production as well as courage and skill for combat.

The cost of our national defense must be paid for by the production and operations of non-war industry.

We must keep our production lines moving. The textile industry is doing just that... and Sonoco is doing the same thing—supplying dependable service on textile paper carriers.

Sonoco
SERVES THE WORLD
PAPER CARRIERS

SONOCO MAKES *EVERYTHING* IN *PAPER CARRIERS*

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. | HARTSVILLE S. C. | MYSTIC CONN.

DEPENDABLE SOURCE OF SUPPLY

MILTON W. LIGHTCAP, in charge of Maintenance Sales for Devoe & Raynolds Co., New York, who has just been appointed sales manager of the newly-created Painter and Maintenance Division.

Hargrove, who has been connected with the finishing department of P. H. Hanes Knitting Co., Winston-Salem, N. C., since 1933, is now with Quaker Chemical's Knoxville, Tenn., office, calling on the textile and metal industries in Tennessee and West Virginia.

Monsanto Chemical Co., St. Louis, reports second quarter, 1941, sales at an all-time record of $16,075,620, which is 54% ahead of the corresponding quarter a year ago.

Sherwin-Williams Co., Cleveland, Ohio, will have charge of construction, management and operation for the Government of a large bomb and shell loading plant known as Illinois Ordnance Works, to be built on Crab Orchard Lake at Marion, Ill. A separate company known as the Sherwin-Williams Defense Corp. has been set up to operate the new project.

Milby-McKinney, Baltimore, Md., has added C. C. Brownley to its sales staff. He will be actively engaged in sales engineering work involving Cochrane water conditioning equipment, Armstrong traps, Goulds pumps, Ruggles-Klingeman valves, Wagener steam pumps, and D. E. Whiton turbines.

The 1942 Packaging Exposition will be held at the Hotel Astor, New York, April 14 to 17, 1942, it has been announced by the American Management Association, sponsor of the event.

York (Pa.) Ice Machinery Corp. was featured recently in the "Defense for America" radio program sponsored jointly by National Broadcasting Co. and National Association of Manufacturers. William S. Shipley, chairman of the board of the York Ice Machinery Corp., and originator of the "York Plan" for pooling men and machines to handle large Government contracts quickly, was the key speaker on the broadcast. York Ice Machinery Corp. reports orders booked for the first three-quarters of its fiscal year ended June 30 as $17,529,352, an increase of 39.5% over the similar period ended in 1940; orders billed were $12,784,963, an increase of 20%.

Farrell-Birmingham Co., Ansonia, Conn., has awarded service emblems to 577 employees in recognition of continuous service with the company for ten years or for twenty years.

General Electric Co. has formally placed in operation at Taunton, Mass., its fifth plant for the manufacture of plastic parts. The plant will add 25 percent to G-E plastics production and will be the third largest molding plant in the United States. It is housed in a structure which has been idle for 20 years and was formerly a motor factory associated with the G-E Lynn Works.

S. L. Bagby, manufacturers agent, Charlotte, N. C., has bought for occupancy the building formerly used by the American Cyanamid Co. before that company moved to its new quarters.

Commercial Credit Co., Baltimore, Md., reports consolidated gross volume for the six months ended June 30, 1941, of $557,493,638, compared with $416,712,085 for the same period of 1940, and with $986,040,355 for the twelve months ended June 30, 1941. Gross volume for the six and for the twelve months' periods ended June 30, 1941, were the largest of any similar periods in the company's history.

Naugatuck Chemicals, Ltd., is the name of a new company formed by Dominion Rubber Co. of Montreal, Que., for the manufacture of aniline oil needed by the Canadian Government for war purposes, also anti-oxidents, accelerators, and other war chemicals. The company which will be located in Elmira, Ontario, will be controlled by Dominion Rubber Co., in the same manner as the United States Rubber Co., operates the Naugatuck Chemical Division.

W. J. Westaway Co. Ltd., Hamilton, Ontario, is moving its offices in Montreal to modern and larger quarters at 608 Craig St. W.

Howard Brothers' Diamond Anniversary

Seventy-five years of card clothing production are being checked off by Howard Brothers Mfg. Co., Worcester, Mass., as 1941 rolls onward. This internationally known concern, which has specialized in card clothing ever since Albert H., Charles, and John Howard organized the company in 1866, began work with about two dozen machines. Today some 400 machines and other general equipment are in service at the 80,000-sq.ft. plant at 44 Vine Street, close to the Union Station. There are 175 employees, all skilled workers, headed by Harry C. Coley, president, treasurer and general manager, who entered the organization in 1899 as an office boy. Long service, promotion from within, and minimum turnover characterize the history of the plant personnel. The president holds many civic and philanthropic responsibilities in his home community, and is an executive board member of the Southern New England Textile Association.

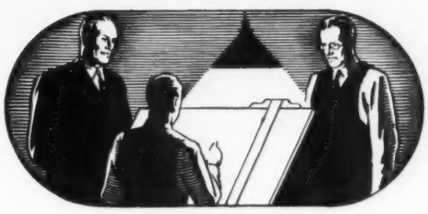
Automatic machinery has superseded older hand methods in the plant, and progress has been accentuated by a research department which has contributed much to precision of processing and durability of "Tuff-Special" and other so-called "Tufferized" material. The company has branch plants in Atlanta, Ga., and Gastonia, N. C., with branch offices in Philadelphia, Pa., and Dallas, Tex. A valued possession of the company is a small machine for card clothing manufacture which President George Washington noted with interest in his 1789 diary, emphasizing the cutting and bending of teeth in a single stroke.

Howard Bros. Mfg. Co., Worcester, Mass., which is celebrating its 75th anniversary

SPECIALISTS IN BEARING ENGINEERING

Important Yesterday . . . Vital Today

● There is scarcely an industry of importance today that is not making a *better* product, *faster* and with *greater efficiency* because of work done at strategic points by New Departure bearing engineers . . . experienced specialists in the design and application of anti-friction bearings.



New Departure, Division of General Motors, Bristol, Connecticut; Chicago, Detroit and San Francisco.

Nothing Rolls Like a Ball

For factory aid and shop training courses ask for the New Departure Shop Manual on the handling, mounting and maintenance of ball bearings. Data books for engineers and designers available upon request. For bearings in full size section please ask for layout folder, LF. . . .

New Departure

BALL BEARINGS FOR DEFENSE

FREE FOR THE ASKING

Readers interested in literature reviewed on this page may secure copies by writing to Textile World, 330 West 42nd St., New York, giving their company connection, title of item desired, and date of issue in which it was reviewed.

Improvements in dyeing of woolen yarns and fabrics by means of automatic dye-vat control is the subject of an illustrated mailing piece which contains case-studies of results achieved in three mills; issued by Bristol Co.

Air-operated controllers for temperature, pressure, flow, liquid level, and humidity, are described and pictured in a 36-page catalog designated No. 8903 and offered by Brown Instrument Co.

Clothroom equipment in new and redesigned models for sewing and rolling, shearing, and brushing, is discussed in the July issue of *The Clothroom Spotlight*, published by Hermas Machine Co.

Functional floor design is the subject of a new booklet published by Open Steel Flooring Institute, Inc.; included are illustrations of principal types and typical applications, tables and diagrams of safe loads, methods of installation, etc.

Materials handling equipment of the monorail type and how it can help increase plant capacity without the necessity of expansion, is the subject of two pages of pictures and text which are included in the July issue of *The Swirling Column*, distributed by American Monorail Co.

Flow meter applications is the topic of a 52-page handbook on profitable use of flow meters in connection with steam, water, air, gas, and viscous, volatile, and corrosive fluid measurements; included are details on ten different types of instruments for various services; designated Publication 3010 and offered by Cochrane Corp.

Interlock knitting is discussed in a leaflet which tells something about uses to which interlock-knitted fabrics can be put, and contains an actual sample of a sweater fabric so produced; issued by Wildman Mfg. Co.

Synthetic gear materials made of Bakelite-laminated are discussed in a new folder which describes properties of the material, uses to which it is suited, etc.; included are horsepower charts showing a wide range of conditions; prepared by Synthane Corp.

Spreader stokers for firing various types of boilers with a wide range of fuels are described in Catalog SS-2 which contains a number of photographs high-lighting latest design features and giving close-up views of various parts of the device; offered by Combustion Engineering Co., Inc.

Accessories and supplies for roller-bearing doffing combs, dusters, mule spinning equipment, and card- and spinning-rooms are discussed in the July issue of *Davis & Furber News* published by Davis & Furber Machine Co.

Thermocouples and thermocouple accessories for a variety of services are the subject of 32-page bulletin No. S2-3, which also contains tables on temperature conversion, pipe and wire sizes, decimal equivalents, etc.; prepared by Wheelco Instruments Co.

Soaps and detergents for industrial uses are the subject of a new soap-buying guide issued by Colgate-Palmolive-Peet Co.; it shows the company's entire line and also gives data on trade names, packs, qualities, and uses.

Link-Belt equipment and how it is aiding mass production of national-defense materials, is the topic of Bulletin 1917, titled "Just Another Job," issued by Link-Belt Co.

Centrifugal pumps of two-stage type are discussed in leaflet W-304-B2 which contains photograph and cutaway diagram showing pump parts, and data on features and specifications; issued by Worthington Pump & Machinery Corp.

Electrical controls for chemical feeders designed for proportioning a number of individual chemicals to water conditioning systems in accordance with make-up requirements, are described and pictured in Publication 3015 issued by Cochrane Corp.

Spring alloys for use under conditions which involve exposure to corrosion and/or high and low temperatures or other severe service are the subject of a booklet recently published by International Nickel Co., Inc.; included are technical data and tables on strength, stiffness, resistance to corrosion, etc.

Agitators, mixers, digesters, kettles, etc., are illustrated and described in a 28-page catalog which contains comprehensive specification tables and data on selection of proper types; issued by H. K. Porter Co., Inc.

Integral gear units for generators, compressors, pumps, lineshafts, and other equipment to be driven slower than efficient turbine speeds are described in a 4-page folder, No. F-8603, announced by Westinghouse Electric & Mfg. Co.

Piping pointers for defense production are the subject of a recent bulletin prepared by Crane Co. and containing fourteen diagrams and descriptions of the proper methods of increasing life and efficiency of piping.

Fluorescent lighting is discussed in a 28-page booklet, No. Y-138, which contains 61 illustrations, some of them in textile mills, showing applications of fluorescent lighting, types of installations available, and advantages achieved through better lighting; offered by Lamp Dept., General Electric Co.

Elimination of smoke nuisance and waste of fuel is the purpose of an electric-eye smoke control described in a 4-page folder being distributed by Rehtron Corp.

Fractional horsepower V-belts are the subject of a catalog section describing construction and advantages of V-belts, as well as types available and prices; distributed by B. F. Goodrich Co.

Self-locking nuts for a variety of services are described in a 4-page folder, of which two pages are given over to diagrams and descriptions of what self-locking nuts are, where they can be used, how they work, and why; published by Elastic Stop Nut Corp.

A penetrating floor finish for wooden floors, which is said not to scuff or chip off, is described in Bulletin 519 issued by Truscon Laboratories.

Steam conduit for permanent protection, support, and insulation of either hot or cold underground pipe lines is described in Bulletin 381, which shows of what the system consists, how it is installed, and lists representative users; produced by H. W. Porter & Co.

Coupled reduction gears for driving compressors, lineshafts, generators, etc., are discussed in Booklet B2278, which includes cross-section drawings showing position of important parts and giving physical dimensions; offered by Westinghouse Electric & Mfg. Co.

Electric hoists are described as regards construction, operation, and applications in 26-page Catalog H-40, which also gives data on capacities, speeds, heights of lift, and other specifications; issued by American Engineering Co.

Accounts payable procedure is the topic of a folder being distributed by Todd Co., and outlining the way in which this company's voucher checks promote efficiency and eliminate hazards of financial loss in payment of invoices.

Bearings featuring bronze on steel, said to combine the strength of steel with the bearing qualities of bronze, are described in an illustrated leaflet prepared by Johnson Bronze Co.

Link fence for a variety of purposes is described in a new catalog, designated No. 641, containing several sections, each of which is devoted to a particular type of fence; a feature is the simplicity of descriptions and profuse use of pictures and drawings; released by Page Fence Association.

Brine making by the Lixate process is described in a newly revised edition of a booklet on the subject prepared by International Salt Co., Inc.; included are several photographs of installations in textile mills.

Humidification by means of a system which atomizes a mixture of steam and cold water is the subject of a recently issued bulletin, which features the facts that the atomized vapor is so fine that there is no dropping of water or wetting of machinery, and that the equipment is self-contained and can therefore be used even where no steam is available; issued by Steamaire Co.

LIKE A KEY FOR EVERY LOCK

A Triton for every Dispersing, Scouring, or Wetting Purpose

TO think of the TRITONS as just wetting, dispersing and scouring agents is to miss one of their major values. In name and appearance, the TRITONS may look alike—but chemically they differ greatly. This fact is important to remember in studying your wetting, dispersing, and scouring problems, because if one TRITON does not solve your need, it is highly probable that one of the other four will.

The following list of textile applications for each TRITON may provide the key to your particular problem.

TRITON W-30 (anion active) Used as a penetrant and leveler in dyeing of vat colors . . . assists penetration of DEGOMMA in desizing, and of RHOPLEX and RHONITE resins in finishing.

TRITON 720 (anion active) Used as soap substitute . . . disperses dyestuffs to give more level dyeing.

TRITON E-79 (anion active) Used as a wetting agent in many textile processes and a wetting back agent in sanforizing. Employed in scouring and degreasing operations where an oil and water soluble emulsifying agent is required.

TRITON K-60 (cation active) Used as a powerful softening agent for fabrics . . . acts as a mordant for certain dyestuffs and resin emulsions.

TRITON NE (non-ionic) Used as a wetting and dispersing agent in sizing, desizing, finishing, bleaching, stripping, and water-proofing.

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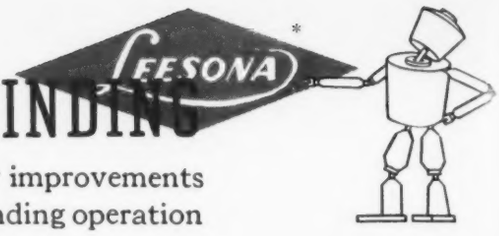
WASHINGTON SQUARE, PHILADELPHIA, PA.

Manufacturers of Leather and Textile Specialties and Finishes . . Enzymes . . Crystal-Clear Acrylic Plastics . . Synthetic Insecticides . . Fungicides . . and other Industrial Chemicals

THIS IS NO. 29 OF A SERIES ON

GETTING THE MOST FROM WINDING



Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

SHORT-TRAVERSE PACKAGES (Roto-Coner*)

Many mills are taking advantage of the opportunity presented by the Rotating Traverse to wind packages of short lengths at the same speed as full-length packages and without change in the traversing mechanism.

Any of the standard rolls may be used (see chart) in conjunction with a special attachment for stopping the yarn at any crossing point of the grooves in the roll, thus preventing the yarn from traversing the full length.

Warping Cones — Fine Yarns and Spun Rayon

Fig. 1 shows the standard 3-crossing (accelerated) roll for warping cones, being used to produce short-traverse packages of fine yarn.

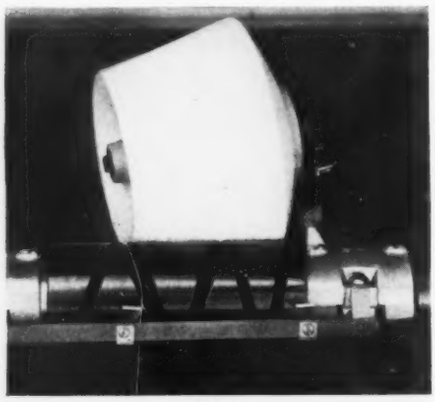


Fig. 1

These short-length packages are desirable for fine yarns because there will be a reduction in end breakage when delivering from the warping creel. Fine counts of yarn do not balloon between cone and creel tension, even at high speeds, and the yarn is likely to drag over the surface and nose of a full-length cone. By winding only onto the base end, the distance the yarn will have to travel over the surface of the cone is decreased; and the space between the nose end of the cone and the creel tension is increased, thus reducing end breakage.

A mill using wood cones can wind short traverse packages on the same cones. When paper cones are used, a special paper cone which is short on the nose end, fits over the regular cone holder, being held in place by the regular prongs.

Mills warping filament rayon yarns and wanting to wind spun rayon for use in the same creel can use the Roto-Coner* equipped with paper cone holders for 3° 30′ taper cones. Either the full traverse or the short traverse is used, depending upon results when removing the yarn from the cone in the creel.

Dyeing Packages

Fig. 2 shows the standard 2-crossing roll for tubing, used with the Short Traverse Attachment to produce short dyeing packages of fine yarn. The same traverse can be used for producing full-length packages by removing the finger.

Large Diameter Warping Packages

Fig. 3 shows the 3-crossing (accelerated) traverse used for preparing 3¼″ traverse packages for warping. In this illustration, the machine is fitted with the standard spindle, over which is applied a special holder.

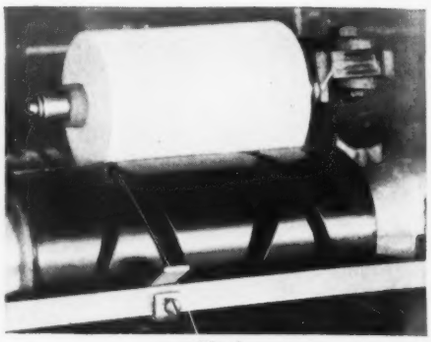


Fig. 2

This same set-up can also be used with the special 3-crossing uniform roll to wind the same package with 3″ traverse. A number of spindles of the Roto-Coner* can also be used for winding short bobbins or for back-winding small packages.

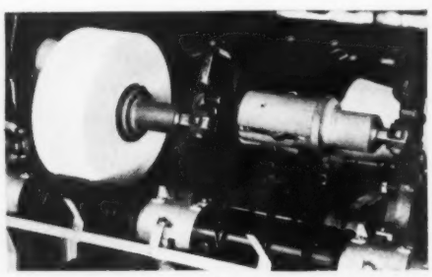


Fig. 3

SHORT PACKAGE LENGTHS

which may be produced on the Roto-Coner*

Traverse	*Yarn Traverse (inches)*	*Winding at Left or Right End of Traverse*	*Short Lengths Obtainable (inches)*				
2 turns uniform (40–51–32x)	$5\frac{3}{4}$	either	$4\frac{1}{4}$	$2\frac{3}{4}$	$1\frac{1}{4}$		
3 turns uniform (40–51–28x)	$5\frac{7}{8}$	either	$4\frac{7}{8}$	$3\frac{7}{8}$	3	$1\frac{7}{8}$	$\frac{15}{16}$
3 turns $\frac{5}{8}$ accel. (40–51–40x)	6	left	$5\frac{3}{16}$	$4\frac{1}{4}$	$3\frac{1}{4}$	$2\frac{1}{4}$	$\frac{7}{8}$
		right	$4\frac{3}{4}$	$3\frac{5}{8}$	$2\frac{9}{16}$	$1\frac{5}{8}$	$\frac{11}{16}$
$2\frac{1}{2}$ turns full accel. (40–51–27x)	$5\frac{3}{4}$	left	5	4	$2\frac{3}{4}$	$1\frac{1}{2}$	
		right	$4\frac{1}{4}$	$2\frac{7}{8}$	$1\frac{3}{4}$	$\frac{3}{4}$	

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THE OVERSEERS' CORNER

WHEN THE FAITHFUL EMPLOYEE GETS TOO OLD

A PETE & BILL DISCUSSION

Pete was staring moodily out of his office window as Bill sauntered in saying, "Well, shake off the blues and let's arrange a little fishing trip for this week-end. I hear that the fish are really biting down at Cobb's Lake."

"I couldn't enjoy fishing. I don't feel like having fun," replied Pete, turning to face his friend.

"What's a matter, the boss been fussin' at you?" asked Bill slyly. "Has your production slipped out of line?"

"No, worse than that. The super came through this morning and didn't like the cleaning job being done on the floor of my room, and . . ."

"You must be crazy to worry about that!" exclaimed Bill. "Get a new scrubber."

"Let me finish," said Pete. "Old Tom Jones, who was one of the best employees in this room for about 40 years, is scrubbing my floors. When old age crept up on him he got so inefficient that he couldn't run a productive job, and so I put him on scrubbing just to keep from letting him go. He doesn't do a good job of that either."

"Why not let him go?" returned Bill. "He owns his home and a little land around it, and all his children

Pete was staring moodily out of his office window

are working. Besides, he can get social security. He won't starve."

Pete returned to the window. "No, *he* wouldn't starve, but that's not my point. I am thinking about the other men and women who are giving their lives to this and other textile mills and who will someday be in old Tom Jones' position. When old age slows them down, they will be told that they are through, and it's not right. Why I don't know of a single mill that makes any provision for its old employees, but some other industries do."

"Maybe you should have worked in some other industry, then," said Bill as he went out.

What should mills do about aged employees?

Letters from Readers

Good Spare Hands Are Never in Way

"Handling Spare Hands"
Pete & Bill, July, 1941

Editor, Overseers' Corner:

The question of handling spare hands is a problem, but not necessarily a difficult one if managed properly.

First, few spare hands hang around with intentions of working or of helping others to work. So many times their lingering slows up the routine of the regular employees, and this should never be permitted to happen. I am speaking of those persons that are laid off for one shift.

The early bird who comes into the mill too soon, perhaps to chat with friends before starting to work, is a productive waste. No employee should be allowed to enter the mill ahead of time to get to his job unless his reason for doing so is important, and if the labor board upholds such idling, the labor board needs to adopt a new name.

Pete, did you say that you are afraid of losing a "good" spare hand? Good hands don't wish to frolic about all over the mill keeping others from working; they come in at the proper time, with good intentions of working, and prove it by running their jobs and aiding the others only when necessary.

MARTHA B. PITTENGER (*Alabama*)

On Credit Deductions from Pay

"Payroll Deductions and Credit"
Pete & Bill, June, 1941

Editor, Overseers' Corner:

The discussion by Pete and Bill in June TEXTILE WORLD, on payroll deductions and credit seems to be very timely. Hearings are now being conducted in various cities in the textile area on this very thing. The fact that the majority of mill managers seem to favor the system should not, I think, be interpreted to mean that mills make money out of the system. The fact is that in many cases the system represents

CONTRIBUTIONS to the letters and practical helps in "The Overseers' Corner" are paid for when published without regard to length. We use letters (not over 200 words) discussing the material on this page or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute practical helps or kinks which are published (not over 500 words) will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. Contributions of greater than specified length may be given consideration as articles. If these pages interest you —contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42nd St., New York.

a loss to the mill account because of the clerical work involved and a few bad debts. The textile workers themselves insist on an extension of credit by the mill, and they prefer to have the payments taken out of their tickets rather than to make trips to the office to make cash payments.

Who ever heard of it being a crime to deduct union dues from the pay envelope of a textile worker? The union is careful to have the "check-off" clause inserted in their contracts because they know that unless the mill collects the dues for them, the majority of the members would soon be skipping payment. Yet, the unions seem to want the practice of payroll deductions stopped. Are they willing to abandon the check-off to prove their sincerity?

P.L.H. (*South Carolina*)

Employee Favors Certain Wage Deductions

"Payroll Deductions and Credit"
Pete & Bill, June, 1941

Editor, Overseers' Corner:

The proper logic in this case of wage deductions will involve "yes and no" answers to both the boys' views.

As an employee, I certainly enjoy the saving of $1.50 a ton on the coal I keep warm with in the winter. I like the idea that the rent comes out in smaller amounts than it would be if paid once monthly. The light bill, when coming out with a ton of coal and the rent, does make an effective dent in the check. I do believe that I could manage if this were not the case, but I do know many fellows who would not, even if they were compelled to do so. They resort to borrowing on their wages a week ahead.

Having been in the industry for over fourteen years, I yet have my first time to get a loan on my earnings or to borrow my wages ahead of the regular pay day regardless of what the situation might be.

Wage deduction on bulky items, such as coal, rent, lights, cloth, quilt cotton, and perhaps a hospital account, are items I think legitimate for deduction; but store accounts, the assignment of wages to loan sharks or agencies and other similar items should not be included in these deductions. Furthermore, I think that to request the company's office force to do this collecting isn't fair, but if it is done the parties favored should pay a percentage for this payroll protection. I say taboo to the company store which is just an invitation to extravagance, and in the end is disastrous to the employees and perhaps the store owner.

LAMAR FOGEL,
(*South Carolina*)

Thoughts for the Key Man

A Key Man is the vital link between the firm itself and its employees. It might be better termed, "the management from within."

From the moment the speed is thrown on in the morning until it is turned off at night every shaft that turns, every machine that moves and every employee within the department is directly under his jurisdiction. It's a big job and a big responsibility.

The days have passed when an overseer's knowledge of the processes was all that was required to become a key man. For today, every key man must be a successful manager; he must be able to handle help in clock-like fashion and every minute must be crowded with quality and production, and at the same time a watchful eye must be kept continually on cost.

Yes it's a big job and no key man can ever attain to the higher executive ranks until he has successfully managed his own department and put it on a profitable basis just as though it were his own private business.

In planning, a key man has only one alternative. He must plan ahead or fall behind. By planning ahead, I mean that he should visualize the successive stages of production, for planning is really an imaginative power that lets us see the finished task before it is really started.

However, it is also essential that we train our minds to remain open so that even after our plans have been put into effect, we may still be able to foresee changes that will further help us to increase our production at a still greater saving of time and effort. A change of plans, which may be unavoidable, should not upset the entire morale of a department.

It is also reasonable to expect that a key man will become familiar enough with the department preceding his so that he will know approximately how much production he will receive during the next few hours, days or possibly a week. If a key man does not interest himself in getting this knowledge, then his planning is based merely upon luck. For this reason it becomes essential that each department head must cooperate to the very limit with his fellow key man.

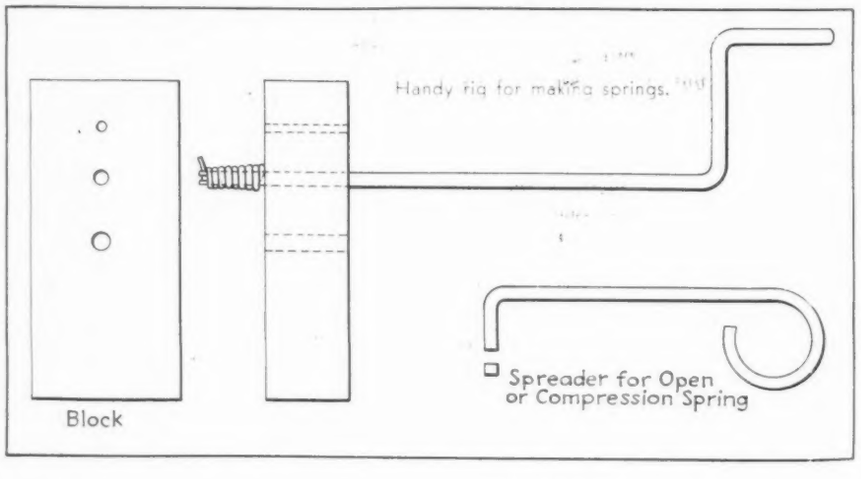
J. B. DICKSON
(*Lowell, Mass.*)

Overseers' Practical Helps

Homemade Spring-Coiler

A mechanic who works on small machinery frequently finds it necessary to replace a small spring. If there are none on hand, and he cannot steal one from an idle machine, he has to make one. The rig shown in the illustration will produce springs quickly and easily. The device consists of arbors of required diameter and length for making commonly used springs, and a wooden or metal block, about 1x2x4 in., containing holes in which the various arbors fit snugly. The ends of the arbors are slotted to admit wire.

Clamp the block in a vise, push the arbor through the hole until the slotted end appears, and insert the end of wire in the slot. Turn the crank with one hand, apply tension to the wire with the other. The accumulating coils,



with the block as a backstop, drag the arbor through the hole and press the coils together tightly.

For making open, or compression springs, a hook made of square wire is a convenient accessory. Start the spring, as before, place the spreader between the first coil and feed of the wire against the block, and turn the crank. The spread between coils is approximately the width of the spreader.

J. F. Cahill *(Georgia)*

Extinguishing Mill Fires

Textile men in England, who are having to carry on mill operation under great handicaps, have developed many unique solutions to problems with which they are confronted. One of these is described in the following short item.—Editor.

Small mill fires, such as those usually extinguished with buckets of water, sand, etc., can be very well dealt with by buckets filled with old boiler-insulation material, finely powdered. For fires where the heat is intense and localized, it is excellent. The material is advantageous in that it retains its properties at any temperature. Water and sand, on the other hand, are likely to lose their extinguishing properties if temperatures are excessive.

For oil fires, where many extinguishing materials fail, this material is excellent. It also has the advantage of being non-abrasive, and therefore does not damage machinery, bearings, etc.

W. E. W. *(England)*

★ ★ ★

Mill Outings

About 1,700 employes and guests attended the annual clambake and turkey dinner of Nashawena Mill, New Bedford, Mass., held at Lincoln Park. Sports followed the dinner. Honor guests were A. W. Macy, superintendent of the plant, and Mrs. Macy. John Cook was chairman of the outing committee, Bertha Heald serving as secretary.

The outing and clambake sponsored by the employes of Soule Mill, New Bedford, Mass., attracted more than 500 to Shawmut Pavilion. Special buses and private autos provided transportation. Games, dancing and competitive sports made up the program. The committee in charge was headed by Ralph R. Poulin. The weaving department won the tug-of-war, and the yarn department was winner over the weaving department in a softball game.

Sulloway Hosiery Mills, Franklin, N. H., had their outing Saturday, Aug. 16, at the Blad Farm. It was a clambake put on by the employees. There were reported to be 600 present with tables so all could be seated at one time, and there was an abundance of food, chicken pies, lobsters, clams, sweet corn with potatoes and onions. After the dinner, 88 employees who have been in the service of the company for 25 years or over were presented with service pins. The pin with a diamond went to William Ralph who is credited with 59 years service. W. "Red" Young was master of ceremonies.

Spinning-Room Practice

How to prevent bunches, variations in weight, slubs, and other imperfections

By WILLIAM STOCKTON

THIS IS THE FIRST of a short series of articles on cotton mill spinning-room practice, with special emphasis on causes and prevention of yarn imperfections arising in the spinning room; the material has been compiled from various sources and has been used by Mr. Stockton in employee training courses in several southern mills

THE FIRST RULE OF GOOD SPINNING is "keep a clean house." Dirty spinning frames result in more unsatisfactory work than is generally realized. Accumulations of dirt, oil, grease, and waste not only work their way into the yarn, but also have a demoralizing effect on employees that tends to make them careless and slovenly. Thus, when frames are kept clean many imperfections are eliminated.

Many spinners, cognizant of the fact that they cannot spin good yarn from inferior roving are all too quick in passing on to the card room the blame for bad work. However, good roving can be, and frequently is, spun into inferior yarn through faults arising in the spinning room. It is on these spinning room defects that this article will lay most emphasis.

Bunches in yarn usually are caused by dirt and sometimes can be traced all the way back to the card room, but in this article only the spinning room is considered, and the following are the causes.

1. Roving placed in dirty boxes.
2. Roving placed on dirty creels.
3. Trumpets becoming choked up.
4. Dirty cleaners, rolls, or thread boards.
5. Blowing off frame with compressed air.

Singlings can be made in the spinning room only when running double roving; one end of the roving breaks back but the other end continues to run because the traveler is too light to break it down. To prevent singlings the weight of the traveler must be increased. Singlings produce a yarn that is weak, much lighter than the calculated weight, too small, and with insufficient twist.

Doublings usually are made in yarns spun from double roving, but can be made when spinning from a single end of roving. More than the required number of ends of roving go into a trumpet and, consequently, into the end of yarn. Per unit of length, the resulting yarn is much heavier than the required weight, and can be distinguished by its size and twist.

Thick and thin places in yarn are caused by the following:

1. Apron slipping, causing draft to be not uniform.
2. Dry rolls which do not turn uniformly.
3. Bottom rolls loose in the joints, causing a slow start of part of the rolls.
4. Gears slipping, causing the feed to be irregular.
5. Stripped teeth in gears, causing the feed to be irregular.
6. Worn flutes on rolls, allowing the roving to slip; this has the same effect as if there were not enough weight on the rolls.
7. Too much twist in the roving, causing irregular draft.

Oily yarn usually is a case of carelessness. Oily roving should never be spun because the spinner should catch it when the bobbin is set in; however, at times the oil may not show up on the outside of the bobbin. Too much oil is often put on the rolls, or too much oil may be put in a bad bearing, causing the lubricant to fly out on the yarn; oily yarn frequently is caused by piecing up with oily hands. Sometimes doffers get in a hurry and drop bobbins of yarn on an oily floor; when this happens, the person who spilled the oil is as much responsible as any one else.

Variation in yarn, strictly speaking, refers to the difference in weight between two different bobbins of yarn which are supposed to be the same weight per unit of length. When a frame

is changed from one number to another, there should be no uncertainty about the gears in the draft layout being exactly the same on both sides of the frame. If more than one frame is on the same yarn, be sure not only that all draft gearing is alike, but also that the twist gears are the same. Of course, variation in yarns also comes from the card room, and this will be discussed under carding.

Irregular twisting appears in yarn which has been poorly drafted and which contains thick and thin places. The twist goes to the light places in the yarn, while the heavy places resist the twist.

Soft places in yarn are due to poor drafting and no twist, to bent trumpets and blunt skewers, to chokes under whorls of spindles and in bearings of idler pulleys, and to vibrating spindles.

Slubs are caused by too long an overlap when piecing up an end, by waste being held in the spinners hand and caught by the yarn when piecing up an end, and by waste dropping from top clearer on roving between rolls.

Performance of all spinning frames should be checked daily. The first consideration, of course, is the size of the yarn. In checking size, it is necessary either to determine percent regain in the yarn or to make the test under standard conditions if reliable results are expected. This also applies to roving. In addition to size tests, yarns should be submitted to skein-break and boarding tests.

When roving contains excessive twist, it is not drafted properly but is merely pulled through the rolls. When only a few ends pull through whole, due to bad splicings in the roving, examine the roving in the creel too, if possible, to try to find other hard ends due to the same cause. They can be discovered between the creel and the back roll and can be seen while one stands on the spot at the time the break occurs. However, if the hard place has passed through the rolls before breaking the end down, it usually can be found wound around the scavenger roll, or the piece may have dropped on the thread board. When a piece cannot be located, it may be discovered that a previous hard end had grooved the top roll; this may explain why the end came down. In this case the roll should be replaced. Observe carefully to see if this occurs again, and, if it does, save the hard end and let it go to the card room for handling.

Insufficient twist causes the roving to break between the bobbin in the creel and the back roll. Two much or too little twist has to be corrected in the card room.

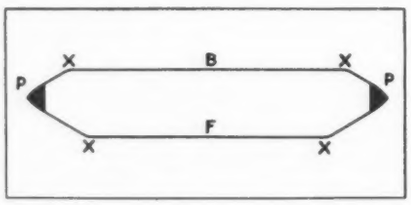
Proper Treatment of Shuttles

And how loomfixers can increase shuttle life and decrease seconds

By ARTHUR HYLAND

A LOOMFIXER'S ABILITY or lack of ability generally can be detected by the condition of the shuttles in his section. The usual causes of short shuttle life are: shuttle being thrown crooked and slapping in the box, reed out of line causing a washboard shuttle back, boxes crooked or not level with lay, and excessive power on pick. A high shed or a loom out of time will also shorten shuttle life, but these faults usually will likewise cause some more obvious trouble and will be corrected before shuttles are damaged.

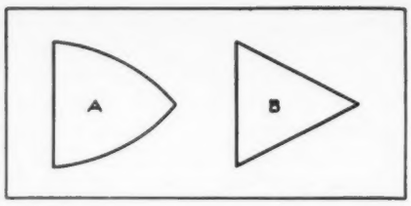
When several shuttles are used in a loom they should be the same size and shape. It is important that the backs and bottoms of all shuttles in the same loom be uniform in thickness, because these are the surfaces which guide the shuttle to the picker; if the back and bottom surfaces are not uniform, the different shuttles will contact the picker



Shuttle viewed from top; *B* is back wall, *F* is front wall, *P* is point, *X* is shoulder

at different spots, shortening the life of the picker and causing the shuttles to leave the box crooked and slap the opposite box or fly out.

If a loomfixer has no gage, a simple method is to lay the shuttle on its back on the work bench and mark on the wall behind the shuttle the spots where the points contact. Do this to all the shuttles and plane the backs of those which contact the highest until all



A shows correct shape of shuttle spur; *B* illustrates incorrect shape

points contact the same spot. The same procedure should be used for the bottom of the shuttles.

A very good method of planing shuttles is to use a piece of coarse sandpaper tacked to a board or to the top of the bench; by running shuttles back and forth across this sandpaper a straight surface can be acquired. There are various planing machines on the market but few fixers have access to these machines.

The backs of shuttles should be straight from shoulder to shoulder, and this straight surface must be longer than the front of the shuttle; this is to prevent the binder from turning the shuttle as it leaves the box. The bottoms and backs of shuttles should be at right angles: use a square to determine this, or place the shuttle on the lay and use the reed as a square.

After the backs and bottoms of shuttles have been made uniform, the total width of all shuttles should be gaged and made uniform, using the smallest as a model; planing done here should be on the front wall. The shoulders of all shuttles should be positioned alike. Renew any groove that has been planed out during reshaping process, round off sharp corners of shoulders by sandpapering, and polish the shuttles with a mixture of shellac and oil. Curve the shuttle spurs slightly, as this will prolong the life of the pickers and to some extent prevent shuttles from sticking in pickers.

Shuttles should be inspected frequently, at least when new warps are being started. As they are one of the greatest expenses in a mill, everything that will prolong their life and efficiency can be considered as most important. When inspecting shuttles observe especially the size, shape, and smoothness; look for cuts in pins and eyes. If they are self threading, see that they thread up properly; if hand threading, see that the bobbin spindle is straight and that tensions, etc., are in good repair; if fur is used see that it is in good condition.

Do not hesitate to break a shuttle which is beyond repair, because someone who is in a hurry might try to use it and cause an expensive smash.

QUESTIONS & ANSWERS

Calculating Filling Weight

Technical Editor:

We are weaving a piece of cloth filled with 30/1 C.P. cotton, 23/25 turns, 44 in. in reed, 68 picks per in. off the loom. Will you please advise the correct filling weight per 100 yd. for this construction. (8820)

The rule for finding the weight of filling with filling counts, spread in reed, picks per inch, and length of cloth already known, is as follows: Multiply width in reed by picks per inch and yards of cloth; divide product by filling count and yarn standard (cotton = 840).

Example, with data furnished: $44 \times 68 \times 100 \div 30 \times 840 = 11.87$ lb., the weight of filling in 100 yd. of the cloth specified.

Warp Shifts in Rayon Fabric

Technical Editor:

Inclosed herewith is a sample of dyed and finished cloth consisting of acetate and rayon. Please advise what caused the shifting of the warp which is apparent. In our opinion, the cloth was woven with an insufficient number of warp ends, or a wrong binder. We shall appreciate your opinion in this matter. (8817)

Examination of this fabric indicates that there is nothing much that can be done with the binding, as you do not have a sufficient number of shafts or harness to make a binding unless you change the appearance of the fabric. If you were to put a binder in this particular fabric, it would show every time you raised or lowered the binder.

If you want to avoid the shifting somewhat, we advise putting in at least four more picks per inch. In this way you can at least finish the remaining part of the warp. If you are to continue making this fabric, we advise adding more warp ends, and rearranging the harness shafts.

Sloughed Filling

Technical Editor:

Our mill is making soft-filled sheetings, 30s filling yarn, 172 picks per min., and is having trouble with sloughed filling. We have tried various things in attempting to eliminate the trouble, with little success. Is the cause more likely to lie in the loom or in the way the yarn is wound on the quill? What corrective measures should we take? (8815)

The chief cause of sloughing-off is incorrectly built bobbins. Bobbin must be built firmly on spinning frames. Probably, your sloughing is caused from having filling bobbins wound too soft or from having too short a taper or nose on quills. The first thing to try would be use of heavier travelers. If this does not remedy the trouble, or if the yarn will not stand heavier travelers than already being used, the next suggestion would be to try a longer taper on quills. Running the traverse down fast and up slow produces firmer noses on quills, and consequently results in less sloughing-off at the loom. However, building the bobbin in this way usually results in more ends breaking down on spinning frames.

Some sloughing-off is caused at the loom by too much power on the pick. It is suggested the looms be checked for boxing of the shuttle and power.

The filling may have been allowed to stand and dry out before going to the weave room. In such case, the filling should be conditioned either in a conditioning room or on a conditioning machine. This conditioning may eliminate the trouble on soft filling, whether it has been allowed to stand or not.

Knitting Calculations

Technical Editor:

How do you figure the cost per pound of 1x1 cloth knit out of the following yarns on an eight-end circular knitting machine? 6 cones 14/1, @ \$0.25½; 2 cones 150-denier, @ \$0.49 (each backed by a cone of 80% wool and 20% silk, 30/1 cotton count, @ \$2.02, run in on a blanking cam.) Also, how do you figure the percentage of cotton, rayon, wool, and silk in this cloth? (8818)

A common method is to run a small sample, weighing the individual yarns at the start and at the finish to arrive at the percentage. Figure as follows: (Assumed figures for example)

Weight of cotton at start, 6 lb.; at finish, 3 lb.; used, 3 lb. Weight of rayon at start, 4 lb.; at finish, 2 lb.; used, 2 lb. Weight of combination yarn at start, 5 lb.; at finish, 4 lb.; used, 1 lb. This indicates a total of 6 lb. used.

$3 \div 6 = 50\%$ cotton × cotton-yarn cost per lb. = cost of cotton per lb. of cloth. $2 \div 6 = 33.3\%$ rayon × rayon-yarn cost per lb. = cost of rayon per lb. of cloth. $1 \div 6 = 16.7\%$ combination yarn × combination yarn cost per lb. = cost of combination yarn per lb. of cloth. Adding these figures together will give the total cost per pound.

Finishing Interlining Fabric

Technical Editor:

We are inclosing two samples of interlining and would like to know how this cloth is to be treated after it leaves the loom. What machinery is required? What chemicals are used? What is the procedure of operation? (8821)

The samples are very dirty and on account of this an extra operation, as detailed below, would be necessary. The usual procedure for handling fabrics such as this, is to take them dry as they come from the loom and double crab them on a Yorkshire-type, two-bowl crabbing machine. From two to four pieces, according to length and weight, are sewed together, and wound on the wooden drum at the entering end of the machine, a cotton leader being sewed on to each end of the roll of goods.

After this, the leader is run down and threaded around the bottom iron roll ready to start. The bowl or round-bottomed tank is then filled with water and brought to a boil.

The machine is now started and all four pieces are wound around the bottom roll with the top roll, heavily weighted, bearing down. The goods are saturated with the water, which is kept at a boil, while rolling up. With the weighted top roll still pressing on them, they are run for 5 to 8 min., after which the goods are well flattened out and well set.

The machine is stopped, the top roll lifted, the hot water allowed to escape, and the tank filled with cold water. As soon as the goods are cold enough to handle, the top leader is wound around the bottom roll in the second tank, the tank filled with cold water and brought to a boil, and the immersion repeated. After 5 to 8 min., the second bowl is emptied, filled with cold water, and run a few minutes to cool the goods. They are then wound off on to the doffing drum, and pulled away from that by hand into a box truck. They are now hydro-extracted and dried, provided the crabbing has cleaned them out sufficiently that no unpleasant odor is apparent.

If very dirty after crabbing, the fabric should be scoured in a regular cloth washer, with rolls not too tight, extracted, then dried. They will now be very stiff and flat; but, if a high finish is required they can be processed on a semi-decating machine.

COTTON SECTION—Chapter XVII—Continued

By IVAR MOBERG

Box Multipliers

BUILDING THE BODY CHAIN and the counter chain for the blanket layout given in the July installment was discussed in last month's installment. The multiplier chain is built on 24 bars, which, since there are two picks on each bar, makes 48 picks in all. Consulting the chart again indicates that a tube in the third position will start the body chain. Hence, we place a tube in the third position on the first bar and fill in the remaining 23 bars with H's to indicate half rolls. It is obvious that after the multiplier chain has once been started by a roll on the body chain the multiplier chain must complete one full revolution before the body chain is again started. Therefore, any bar on the body chain containing a roll will make the chain repose on this bar until the multiplier chain comes around with the tube under the lever, which in this case, requires 48 picks of the loom. In multiplying on the border chain the chart shows that an X, indicating a roll, in the second position on the multiplier chain will start the border chain. Hence, we place a roll in the second position on the multiplier chain. Since the multiplying integer for the border chain is 24, we fill in the remaining 11 bars with dashes, indicating tubes. Because the multiplier chain is 24 bars long, we must repeat the multiple once more. It is important that the multiplying be so arranged that the last multiplying bar of either body or border chain stops the multiplier chain with the bar containing a ball in the second and a tube in the third position under the levers. Otherwise all four chains will be stopped indefinitely.

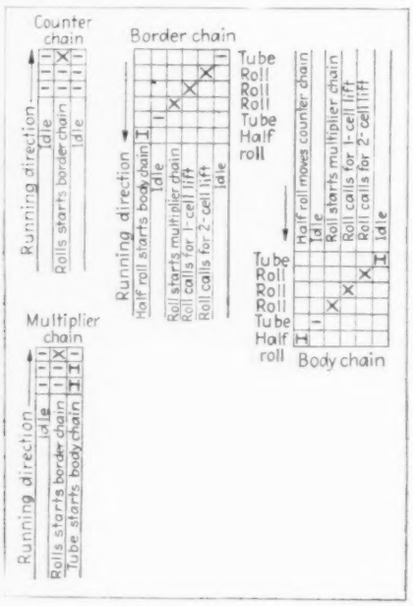


Fig. C96. Chart showing performance of various chain levers (repeated from former installment for readers convenience)

The border chain is drafted similarly to the body chain but using 24 picks multiplying instead of 48.

When beginning weaving, chains should be so timed that the following bars will be under the chain levers: Body chain, bar No. 10 under the levers; border chain, bar No. 35 under the levers (this will make a double margin for the first woven end of the blanket, so as to allow for sewing two pieces together); multiplier chain, bar No. 1 under the levers; counter chain, bar No. 1 under the lever.

In the other method of chain drafting, shown in Fig. C97, the body chain is drafted to produce the margin, then call upon the border chain (by a half roll on the twelfth bar) for producing the first border. The border chain, drafted for one full repeat of the border, calls back the body chain (by a half roll on the thirty-fifth bar) for production of the body, which is drafted in its entirety on this chain. The border chain is recalled to produce the second border by means of a half roll on the sixty-sixth bar of the body chain, after which the body chain is again called on for the second margin, and the weaving cycle is completed. It will be noted that the first two picks of the margin are carried on the border chain. The reason for this is that the last border pick is from the third box, necessitating a roll in the fifth position, and making it impractical to stop the border chain on this bar, as the body chain would not have control over the boxes if this was the case. There must not be any roll on the bar, upon which the body or border chain stops, after calling for a change of either of these two chains.

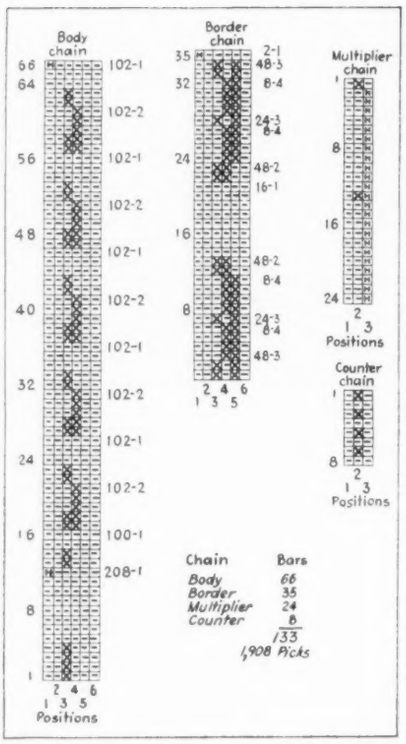


Fig. C97. Chain draft illustrating second method of building chains for Crompton & Knowles four-chain multiplier

In Fig. C96 the same multiplying integers are used as in Fig. C95. The procedures of drafting the two chains are similar, with the exception that the body chain in Fig. 96 is drafted for the entire number of body stripes and does not repeat itself in the weaving of the body. The counter chain, therefore, has alternative bars of roll and tubes.

When commencing to weave, the chains are timed as follows: body chain, bar No. 1 under the levers; border chain, bar No. 35 under the levers; multiplier chain, bar No. 1 under the levers; counter chain, bar No. 1 under the lever.

The preceding installments have discussed the most intricate chain drafting on the multiplier in question. Simpler forms, using only one or two chains of the four, will be easily understood, once the more intricate types are mastered.

FIXING HOSIERY MACHINES

CIRCULAR MACHINES—Chapter XII. Stitch-Graduating Device

By JULIAN W. HUGHES

A CIRCULAR HOSIERY MACHINE cannot shorten courses during the knitting of a stocking in order to fashion the lines to correspond to the calf and ankle of the legs as can a full-fashioned machine. The width of stockings knit on circular machines is reduced to fit the ankles by progressively shortening the length of stitch during the knitting of a series of courses. To accomplish this the cylinder is lowered by an automatic fashioning cam and connecting levers, known as the stitch-graduating device.

Besides the stitch-graduating device for fashioning the calf and ankle portion of the stocking, women's hosiery is knit on the circular machine with various designs to imitate full-fashioned hose, such as a mock seam on the back of the leg, a series of single-tuck stitches on either side of the mock seam to simulate the narrowing marks on full-fashioned hosiery, a reduced heel, and a gusset-toe effect to give the foot a full-fashioned appearance.

The stitch-graduating device consists of an eccentric disk cam attached to a ratchet wheel on the main pattern shaft, and a lever connected to the regular stitch-regulating lever. As shown in Fig. C22, lever *A* rides the face of eccentric cam *B* which, by virtue of its eccentric contour, allows the lever to drop down as the cam is racked around. This downward motion of the lever is communicated to the regular stitch-regulating lever which in turn allows the supporting tube and cylinder to drop, causing the needles to take shorter stitches to narrow the fabric. This tightening of stitches, or narrowing of fabric, is graduated through a succession of courses. It begins when the knitting has advanced about half the length of leg, when the main control chain permits the device to go into action, and continues until the cam has made a complete revolution, by which time the knitting has progressed to the heel and the device is thrown out of racking action.

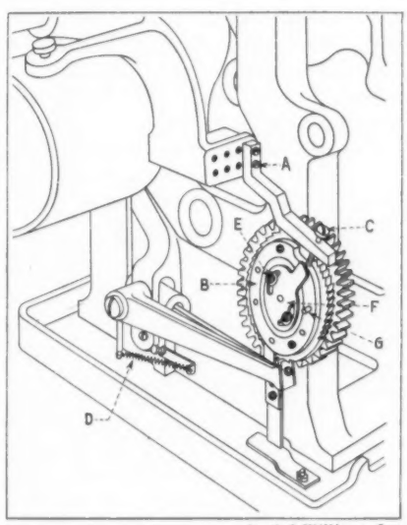
In knitting women's hosiery on circular machines it is important to keep the length of the leg within permissible bounds. If the leg is knit too long, the mill loses money by putting too much yarn in the article. If knit too short, the buyer complains. Very often a fixer is allowed only $\frac{1}{8}$-in. variation from standard length. The correct adjustment and timing of the stitch-graduating device has a very important bearing on the length.

It sometimes happens that the end of screw *C* becomes worn. This permits the cylinder to lower more than intended, making the stitches too short and the fashioning too tight. And since shorter stitches make the knitted fabric shorter as well as narrower, the hose are off-standard length, too much on the short side. This condition can be corrected by screwing *C* farther into lever *A* from time to time, to take up wear.

If the pawl plate is worn or the contact spring *D* is getting weak allowing the pawl to slip over a ratchet tooth during racking, the stitch graduation will not be complete and the hose will be too long. Of course, the remedy is obvious.

The action of the eccentric cam *A* can be advanced or retarded by loosening the screws *E* and swinging the dog *F* to the right or left so it will engage the pin *G* sooner or later. When the stitch-graduating device is out of action, the pawl plate idles on the blank space of the cam ratchet wheel—the space at the lower right of the ratchet where there are no teeth.

No lint or grit should be allowed to accumulate on the cylinder-supporting tube where it could cause restriction of its up-and-down movement.



Scott & Williams, Inc.

Fig. C22. Stitch-graduating device on Model K machines

★ ★ ★

One of our readers has commented as follows on Chapter X of this series on circular machines, which appeared in the June issue:

"1. Every link in a Banner Chain is good for 12 courses in plain knitting, regardless of wear because every link has its own sprocket tooth.

"2. Since you start to reciprocate with half of the cylinder needles in action, you could not reverse on a one-half revolution. An old Banner fixer told me the early machines lacked $1\frac{3}{4}$ in. of a full turn; and the new Banner wraps on which he works, $\frac{3}{4}$ in.

"3. The pattern cams are always mounted on pattern drums which are usually secured to the pattern shaft. The chain sprocket moves one tooth for every swing of the quadrant gear, and the pattern drum moves one or two teeth under the control of the pattern chain. Neither the chain pawl or the auxiliary pattern drum pawl ever come in contact with the chain links. There is a pawl apron with a forward arm having an adjustable bit which rides on the chain. On plain links it holds the pattern drum pawl out of action, and when a lug raises the front end of the apron the back end dips either for one or two teeth on the pattern drum. He calls this a lifter plate, and you have a front view of it in the lower right-hand corner of Fig. C19. All these aprons are cast iron, and never tempered or chilled.

"4. The pawls are moved by the quadrant and not as stated.

"5. The shipper cam drum controls speed only, and the timing of the clutch by the cams on the pattern drum only which must be exactly related to pinion positions."

Mr. Hughes' reply to these comments follows:

"1. In regard to the links in a Banner chain, it is true that each link in the chain represents 12 courses. However, a long chain composed of many links will, if abused and neglected long enough, appear to "stretch", i.e., the aggregate wear in the links can be enough to equal the length of one link. That will have the same effect as adding one link to the chain, and in turn will affect the length of the knitted

fabric. The writer personally has known it to happen.

"2. It is of little concern to a fixer whether the cylinder makes exactly one-half revolution, or only approximately one-half revolution, during the knitting of the heel or toe. This is decided in the erecting department of the factory, and a fixer never has an occasion to change it. I mentioned this phase of the knitting cycle only to clarify my point, and did not think it necessary to state *approximately* one-half a revolution.

"3. Concerning the pattern drums and chain ratchet, I erred and described the mechanisms backwards.

"4. It is true that the pawls are moved by the quadrant. This mistake was due either to a slip of the typewriter or to a typographical error. I do not have a carbon copy of the orignal manuscript and therefore, cannot say positively that it was not my mistake."

FULL FASHIONED MACHINES — Chapter X. The Chain Motion

By WALTER A. SIMOND

THE CHAIN MOTION controls the automatic action of several devices, of which the shifting of the heavy camshaft 7/8 in. to the right for narrowing and its return for knitting has first place, because of the accurate timing required. When the camshaft shifts too late, the results are loose carrier rods and bad selvages. The following instructions for resetting the shifting cams on Reading machines are quoted from the January, 1934, issue of the *Reading Record*.

"1. Set all the [camshaft] cams in the usual manner.

"2. Hang gage No. 5904 over the presser shaft at the needle-bar narrowing cam and turn the camshaft until the cam is in the position shown in Fig. F23.

"3. With the camshaft in this position, take off the end bearing cap and place a piece of cardboard over the shaft and replace the cap. This will prevent the camshaft from being moved while setting the cams.

"4. Place the right-side shifting cam in position against the chain motion roller *D* (Fig. F22).

"5. Hang gage No. 5904 (Fig. F23) over the presser shaft and turn the shifting cam until the tip of the gage coincides with the scribed line *F* on the cam. Then with an 0.008 in. liner at *E* between the cam and roller *D*, tighten the cam in position.

"6. Using the same gage set the left-side shifting cam in the same manner, having the tip of the gage coincide with the scribed line *G* on the cam. This method of setting should be used in every case where the shifting cams are scribed as shown at *F* and *G* (Fig. F22)."

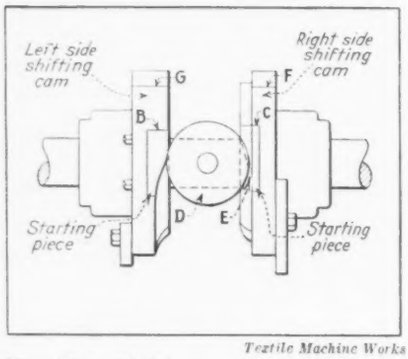
When all the cams on the camshaft are correctly timed, there is clearance provided so all the cam rollers travel smoothly from the knitting cams to the narrowing cams, and on the return. However, if any set of cams has been moved, be careful that the cam rollers are not trapped in crossing, or dropped from one cam incline to the adjacent cam. Any jarring of the narrowing machine in this manner is likely to cause stitches to be dropped in the narrowings.

In machines having cast-iron shifting cams, the cams should be kept well lubricated; and as they wear, the working inclines will need to be refaced occasionally and the cams advanced to correct working positions to prevent a late release or return of the Coulier clutch.

CAMSHAFT BRAKES are of three types. The earliest was the leather-lined clamp which encircles the camshaft and is held against lateral motion. For these, use only enough oil to keep the leather linings from becoming hard and glazed; and do not clamp them too firmly, but have friction enough to bring the camshaft to a quiet stop.

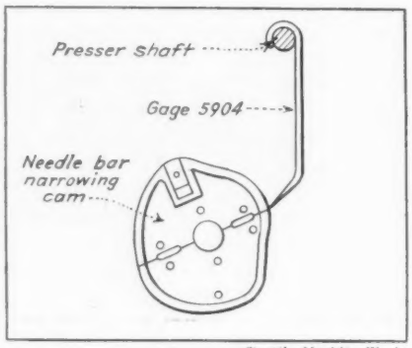
The second type consists of a housing in which is an expanding ring (Fig. F24). These brakes have never been entirely satisfactory and not many are in use today. Following are setting instructions for this type of brake: (a) Turn the camshaft to the position for setting all cams. With the machine in this position, set the cam, 1, circumferentially on the shaft so that the distance between the presser shaft and the cam split is 14¾ in. and with the high point of the cam in the down position. (b) Raise arm, 2, by means of stud, 3, until the roller, 4, is just free of the round part of the cam. Now remove pin, 5, and turn camshaft until roller, 4, is on the high point of the cam. Then put a long screwdriver, or steel rod about 12 in. long, in the hole from which pin, 5, was removed and adjust roller, 4, by means of the setscrews until you can just move the disk, 6. (c) Place cam, 1, on the shaft in such a position that when the machine is narrowing, the roller, 4, will be on the high point of the cam when the camshaft has moved 7/8 in. toward the right. (d) Any slight wear of the brake rings may be taken up by raising arm, 2, the proper distance and then resetting roller, 4.

The third type is the air cushion brake, which requires only regular oiling. If it becomes necessary to open the piston housing, the end plate must be made airtight when it is replaced.



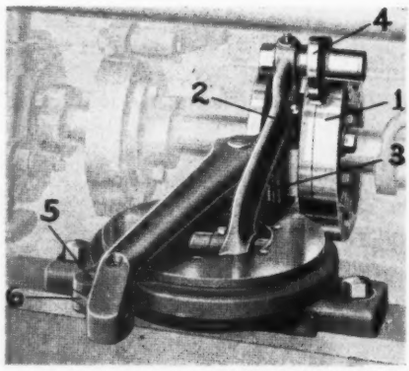
Textile Machine Works

Fig. F22. Shifting cams on Reading machines



Textile Machine Works

Fig. F23. Setting shifting cams



Textile Machine Works

Fig. F24. Camshaft brake consisting of expanding ring within a housing

STAPLE COTTON FABRICS

By JOHN HOYE
Fabric Technician with W. Harris Thurston, New York

This sixty-third installment of Mr. Hoye's series of articles—which began in the January, 1936, issue—discusses rubberized fabrics and begins the discussion of fabrics used in summer sportwear

RUBBERIZED FABRICS are based on various staple cotton fabrics, such as unbleached, dyed, or printed drills, sateens, ducks, sheetings, cambrics, olive-drab combed lawns, and solid-color or colored-yarn flannels. Rubberizing seals the fabric and makes it waterproof and non-porous. A film of rubber may be applied to one or both sides of the cloth, or the rubber may be used to cement together two fabrics, one of which subsequently is the outer fabric and the other the lining fabric. Where extra weight and strength are needed, 3-ply cloths are made.

Suede-like finishes are produced by first coating a dyed cotton fabric on one side with a rubber solution and then spraying the fabric with dyed cotton flocks. The surface is completely covered with a fine, even layer of flocks, producing a waterproof fabric with a soft suede finish on one or both sides.

Rubber-coated fabrics are made into imitation leathers by embossing to simulate the grains of skins, such as pigskin, sharkskin, alligator, and buffalo. The back sometimes is printed, or is napped to add softness, warmth, and bulk. Rubberized gray sheetings, used for tapes, often are made with a special "loop" selvage. A wide range of cotton goods are used in the rubberizing and combining trades, and among the unbleached gray cloths used are the following:

Wide drills—
59 in., 68x40, 2.25 yd. per lb.
54 in., 68x40, 2.00 yd. per lb.
52 in., 68x40, 2.38 yd. per lb.
59 in., 68x40, 1.85 yd. per lb.
37 in., 68x44, 2.75 yd. per lb.

Combed lawn (dyed O.D.)—
40 in., 96x100, 6.60 yd. per lb.

4-Leaf warp twills—
37 in., 88x48, 3.00 yd. per lb.
37 in., 86x42, 2.85 yd. per lb.

Sheetings—
40 in., 60x56, 3.60 yd. per lb.
52 in., 48x48, 3.85 yd. per lb.
60 in., 48x48, 3.30 yd. per lb.

Warp sateens—
54 in., 96x60, 1.10 yd. per lb.
54 in., 96x60, 1.55 yd. per lb.

Loop selvage sheetings—
40 in., 60x56, 3.60 yd. per lb.
54 in., 48x48, 3.47 yd. per lb.

Fabrics for Summer Sportswear

Light- and medium-weight porous fabrics made of all cotton or of mixtures of cotton and spun rayon, or cotton and wool, are used largely for summer sport garments, such as suits, slacks, jackets, trousers, shorts, shirts, and play garments. There are two types: (1) Colored-yarn fabrics employing dyed yarns or yarns spun from stock-dyed fibers; all cotton, cotton mixture, and novelty yarn fabrics are made in plain, basket, twill, and fancy weave patterns, and (2) Converted fabrics, including various basic cotton gray cloths and mixture cloths of cotton and spun rayon, wool, or linen, which generally are colored by piece dyeing, also with printed effects.

Cotton sportswear fabrics usually are dyed with sulphur or vat colors; vat dyes are especially suitable, having the fastness to sunlight and laundering required of these fabrics. Many fabrics are given a mercerized finish; most of them are given preshrunk finishes with a residual shrinkage of 1%, others have shrinkage tolerances of 2 or 3% in either direction.

Gray weights of summer sportswear fabrics 37 to 39 in. wide generally are: for slacks, 1.75 to 2.85 yd. per lb.; for shirt-and-slack ensembles, 2.50 to 3.25 yd. per lb.; for light-weight porous summer shirtings, mesh fabrics up to 6.00 yd. per lb.

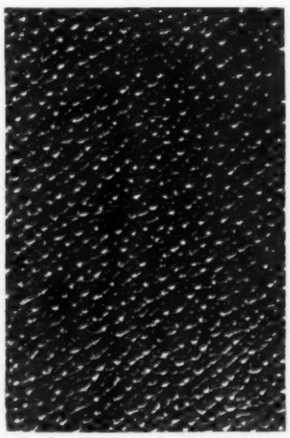
Large quantities of cheap light-weight cotton fabrics are made; they are piece dyed and given a regular starch finish. They often are modifications of coverts, chambrays, and cheviots, and are used for work shirts, aprons, and children's play clothes, but as a rule are not suited for sportswear. Large quantities of these fabrics are exported under the general classification of "suitings."

Blended yarn fabrics are widely used. The styling and general appearance often resembles worsted and woolen summer suiting fabrics used in the men's clothing trade. Yarns are spun from blended mixtures of stock-dyed cotton with wool or cut staple. Other fibers used include mohair, rabbit's hair, and flax.

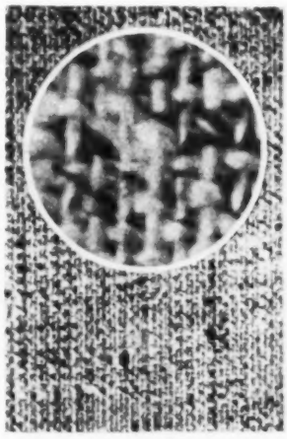
The rayon, hair, or wool fibers give a contrast in color and feel. In the dyeing of acetate and cotton blends the acetate fibers remain white, giving a frosted effect; in cotton and viscose fiber blends the viscose usually dyes a lighter shade. Rayon or silk often is used for decorative stripes and checks; crimped acetate rayon frequently is used to produce a wool-like handle.

In cotton and wool mixtures, 15 to 50% wool is used. In cotton and spun viscose rayon mixtures, the rayon content may vary from 10 to 25% in the cheaper numbers; in the better grades, acetate blends of 50% are used. Weaves used include plain, basket, and regular and herringbone twills arranged in designs of stripes, plaids, and checks.

Mixed- or ply-yarn fabrics are made of 2-ply yarns consisting of one end of combed cotton twisted with one end of filament or spun rayon in both warp and filling. Spun rayon and cotton mixture fabrics generally are given wrinkle- or crease-resistant finishes which also help the garment to retain shape.



Embossed pigskin-grain rubber-coated cloth: base fabric—56½-in. sheeting, 40x30, 5.60 yd. per lb.



Crash suiting with mill-starched finish: 28 in., 36x32, 3.72 yd. per lb., mock-twist yarns, average yarn count of 9½'s

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NEWS OF THE MONTH

Textile Research Experts Plan Long Range Program

The first of a series of conferences to explore the most promising fields for textile research was held at the Hotel Roosevelt, New York, Aug. 28, under the auspices of the U. S. Institute for Textile Research. A group of research men from the industry conferred with the steering committee of the institute. Similar meetings will be held with other groups.

Two main problems were discussed: (1) The broad program of the institute and methods by means of which it could be made most effective; (2) Specific problems which the research men present thought should be the subjects of actual investigation. Complete frankness characterized the meeting, with no holds barred.

Out of this and subsequent conferences, there will be developed the long-range research plan to be followed by the U. S. Institute for Textile Research, in its new working arrangement with the Textile Foundation. This plan will be presented at the annual meeting of the institute in November.

Representing the U. S. Institute at the conference were Edward T. Pickard, executive secretary; Dr. Harold De Witt Smith, of A. M. Tenney Associates, treasurer; Dr. W. D. Appel, of the National Bureau of Standards, chairman of the Research Council; and Douglas G. Woolf, editor of TEXTILE WORLD, a member of the steering committee of the institute.

Research men from the industry included: A. G. Ashcroft, Alexander Smith & Sons Carpet Co.; Dr. F. Bonnet, American Viscose Corp.; Perrin Collier, Callaway Mills; Duncan Ferguson, Shelton Looms; Ephraim Freedman, R. H. Macy & Co.; M. A. Goldman, Fibre Products Laboratory; Dr. C. J. Huber, U. S. Testing Co.; Wm. O. Jelleme, Pacific Mills; J. E. Phragmen, United Merchants & Manufacturers Corp.; Dr. D. H. Powers, Rohm & Haas Co.; W. B. Sellars, Burlington Mills Laboratory; Herbert Schwarz, Wellington Sears Co.; Dr. H. W. Stiegler, American Cyanamid Co.; Werner von Bergen, Forstmann Woolen Co.; Dr. A. C. Walker, Bell Telephone Laboratories; Dr. Roy Kienle, Calco Chemical Co.

Institute and Government Officials Discuss Research

A meeting to discuss research efforts in connection with cotton, from the raw product to finished apparel, and particularly to bring about closer coordination among the many phases of this work, was held at the Raleigh Hotel, Washington, D. C., Aug. 25, by representatives of the Cotton-

MANIKIN DISPLAY devised by Reeves Bros., Inc., New York cotton goods commission merchants. This group of figures dramatizes the use of Reeves military fabrics for industrial uniforms. It was displayed at the recent garment manufacturers convention at Atlanta. On the left are shown a bus driver, a sports outfit, a general work outfit and a truck driver's uniform. On the right are groups from the Army, Navy and Marine Corps using similar fabrics.

"ROMANCE TRIO", a group of fabrics designed by Will Funston for Colonial Fabrics, Inc., New York, is used in dressing table valance, bench cover, lamp shade, and draperies in this lovely bedroom setting for Rita Hayworth in the motion picture entitled "You'll Never Get Rich," produced by Columbia Pictures with Fred Astaire. Retailers are planning displays which tie up the motion picture.

Textile Institute and of a number of Government agencies active in such research.

Those at the meeting were: Dr. Claudius T. Murchison, president, and John T. Wigington, director of research, of the Cotton-Textile Institute; J. B. Wyckoff, Surplus Marketing Administration; Miss Ruth O'Brien, chief, textile and clothing division, Bureau of Home Economics; W. D. Appel, National Bureau of Standards; Henry W. Barr, chief in charge of the division of cotton and other fiber crops and diseases, Bureau of Plant Industry; R. J. Cheatham, chief, cotton processing section, southern regional research laboratory, Bureau of Agricultural Chemistry and Engineering; H. H. Willis, dean, Textile School, Clemson College; Edward T. Pickard, executive secretary, U. S. Institute for Textile Research and the Textile Foundation; M. E. Campbell and Dr. R. W. Webb, agricultural marketing service, Department of Agriculture, Dr. R. Y. Winters, assistant director of research, Department of Agriculture; and Douglas G. Woolf, editor, TEXTILE WORLD.

Unified Statistics Urged in Rayon Weaving

Establishment of a unified statistical program, as "probably the greatest single step that the entire rayon-weaving industry could take to bring about a more intelligent control of all its operations," is suggested in the report of a study of Inventory Management in Rayon Weaving which has been completed for the Textile Foundation.

The study is the fourth in a series of seven which the Industrial Research Department of the Wharton School of Finance and Commerce is making for the Textile Foundation under the title, Inventory Policies in the Textile Industries, as recommended by U. S. Institute for Textile Research.

In suggesting the possibility of a unified statistical program, under the direction of an independent agency, with the sponsorship of the National Federation of Textiles, the National Rayon Weavers Association, the Cotton-Textile Institute, the

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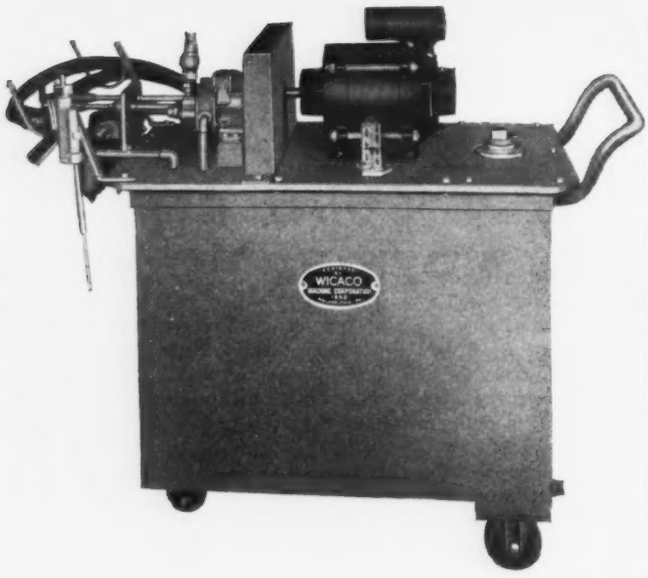

240 SPINDLES FLUSHED AND LUBRICATED IN 1 HOUR!

That's the report of a prominent rayon manufacturer who states that flushing and oiling time was 5 to 6 hours before using the new

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Another company, spinning the large 3 lb. package, finds that it now requires but 45 seconds to flush and lubricate each bolster. Think of the time, money and oil this unique machine will save for you! The two-way nozzle withdraws dirty used oil and fills base to proper level with one operation of the handle. No overflowing—no dirty yarn. Evacuated oil is drawn back into the tank where it is renewed through filters and a magnetic separator which removes any ferrous particles. The machine is entirely self contained, readily portable, and requires no connections except to your lighting circuit. It is inexpensive to purchase and quickly pays for itself in savings on labor and oil.

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Textile Distributors Institute, and the Textile Fabrics Association, the report points out that such a program could include virtually the entire rayon-weaving industry as well as a very substantial number of converters of rayon fabrics.

* * *

Low stocks of unsold merchandise are the first warning of impending inventory problems in the manufacture of cotton-fine goods, according to the third of this series of seven studies. In discussing statistical guides for management of inventories in the fine-goods industry, the report points out that low mill stocks are a "danger signal" because they customarily give rise to heavy forward buying followed by advancing prices that often stimulate an expansion of output far beyond the ordinary needs of the market. Such production increases usually come so late in a buying movement as to require almost immediate curtailment; yet such action can seldom, if ever, be as drastic as the decline in customer takings, with the result that heavy mill inventories are almost bound to accumulate once this cycle of events begins.

Copies of the individual reports, at 50c each, may be obtained from the Textile Foundation, Room 225, Industrial Bldg., National Bureau of Standards, Washington, D. C. The Foundation is also accepting orders for the entire series at $3.00, individual reports to be mailed on publication.

Annual Meetings Ahead

National Association of Cotton Manufacturers will hold its annual meeting at the Copley-Plaza Hotel, Boston, Thursday, Oct. 9.

Southern Combed Yarn Spinners Association will hold its annual meeting at the Red Fez Club, on the Catawba River, 16 miles south of Charlotte, N. C., Sept. 23.

Cotton-Textile Institute will hold its annual meeting in New York, Oct. 30 and 31, 1941.

Must Increase Aid to Fabric Production

In view of a threatened shortage of burlap due to curtailment of imports, a committee of cotton bag-fabric manufacturers has met with Government officials to discuss ways and means of enlarging the output of such fabrics to avoid a bag scarcity for agricultural and military purposes. It was the initial conclusion of the committee that the industry's production of cotton bag-fabric would have to be increased by about 250,000,000 yd. during the next twelve months, assuming a 50% decline in the supply of burlap.

ASBESTOS SUIT demonstration sponsored by the British War Relief Society which is sending 500 of these suits to the civilian firefighters of London and other cities. The asbestos garment was made by Johns-Manville and the demonstration was observed not only by members of the London Auxiliary Fire Service but by the Fire Commissioner of New York City.

A JERKIN JUMPER is among the new styles for school and college wear. The garment illustrated is made of Crown - Tested spun rayon and wool in a glen plaid.

Carolina Yarn Men's Tournament

The annual tournament of the Carolina Yarn Association will be held at Pinehurst, N. C. in the latter part of October. The following are the chairmen recently appointed for the various committees: Entertainment, John Sherrill; Golf, Bob Baker; Prize, Joe Foil; Invitation, Frank Love; Skeet, Bill Dodson. Gordon R. Hope of Greensboro, N. C., is president of the association.

That Wool Differential

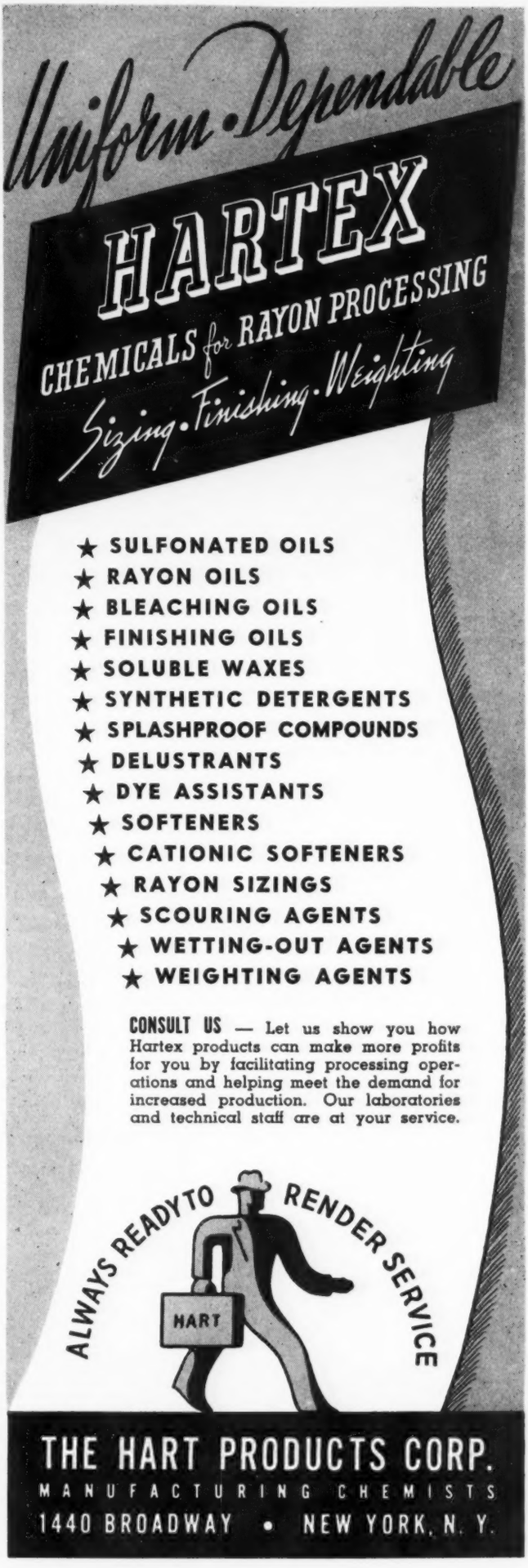
News from army circles regarding the fate of the differential, established to favor use of domestic wool by manufacturers bidding upon army materials, has been a bit uncertain. It is understood that the recent call for bids on wool socks, wool gloves, and tan light wool socks were first amended to nullify application of the differential, and later amended again replacing the differential. No detailed explanation of the conflicting instructions was forthcoming. In some quarters it was stated that the army was preparing to lift the differential entirely because of the apparent inadequacy of domestic wool supplies to cover army needs. In other sources army officials were quoted as stating that the differential would be maintained.

Higher Wages for New England Mills

Pacific Mills, Lawrence, Mass., increased wages in its worsted division 10%, effective Aug. 14, and applying to about 6,000 employees. The last increase took place May 9, and was also 10%. For the six months ended June 28 this company earned $1,044,950 after Federal and State taxes and after a $1,000,000 contingency reserve. In the first half of 1940 the company lost $70,177.

American Woolen Co. announced an increase of 7c per hour, or $2.80 per week, on Aug. 18. Arlington Mills was expected to establish an increase at the conclusion of current labor difficulties.

Woonsocket, R. I., wool manufacturers followed the lead of American Woolen Co., and their increase of 7c per hour or 10% covers 35 mills and about 10,000 workers. New Hampshire manufacturers made similar advances. Normandy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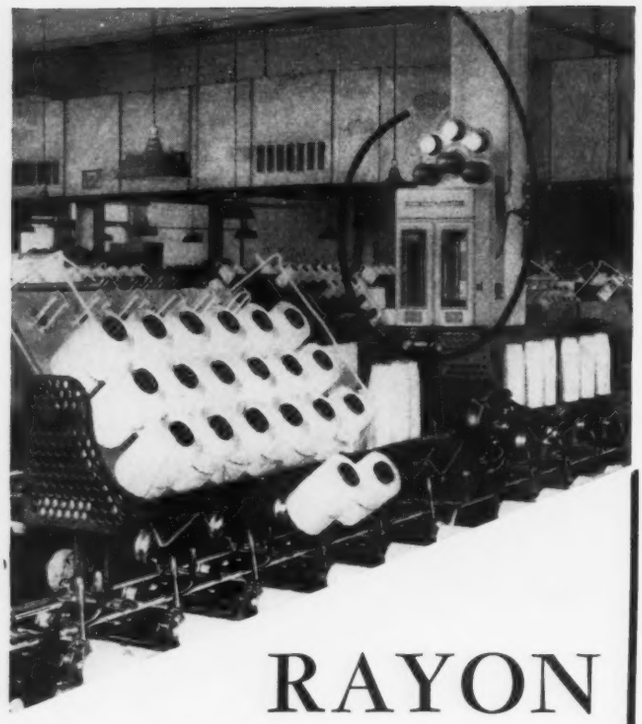

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TEXTILE CALENDAR

Southern Hosiery Manufacturers Association, annual convention, Grove Park Inn, Asheville, N. C., Sept. 19 and 20, 1941.

Gaston County Division, S.T.A., regular meeting, Gastonia, N. C., Sept. 19, 1941.

Southern Combed Yarn Spinners Association, Gastonia, N. C., annual meeting, Red Fez Club, on the Catawba River, 16 miles south of Charlotte, N. C., Sept. 23, 1941.

Piedmont Division, S.T.A., regular meeting, Charlotte, N. C., Oct. 4, 1941.

Eastern Carolina Division, S.T.A., regular meeting, Durham, N. C., Oct. 8, 1941.

National Association of Cotton Manufacturers, annual meeting, Copley-Plaza Hotel, Boston, Oct. 9, 1941.

National Association of Waste Material Dealers, fall convention, San Francisco, Calif., Oct. 11 to 14, 1941.

Master Mechanics Division, S.T.A., regular meeting, Newberry, S. C., Oct. 16, 1941.

Carolina Yarn Association, annual meeting, Carolina Hotel, Pinehurst, N. C., Oct. 24 and 25, 1941.

Cotton-Textile Institute, annual meeting, New York, Oct. 30 and 31, 1941.

American Association of Textile Chemists & Colorists, annual meeting and convention, Carolina Hotel, Pinehurst, N. C., Oct. 31 and Nov. 1, 1941.

North Carolina Cotton Manufacturers Association, annual meeting, Pinehurst, N. C., Nov. 6 and 7, 1941.

New England Council, regular meeting, Hotel Statler, Boston, Mass., Nov. 13 and 14, 1941.

South Carolina Division, S.T.A., regular meeting, Clemson, S. C., Nov. 15, 1941.

18th Exposition of Chemical Industries, Grand Central Palace, New York, Dec. 1 to 6, 1941.

Southern Textile Association, annual meeting, Blowing Rock, N. C., June 11 to 13, 1942.

Print Works, New Bedford, Mass., declared a wage advance 10c an hour. Eleven other New England finishers gave a raise of 7c effective Sept. 22.

A.A.T.C.C. Notes

Plans are rapidly being completed for the annual convention of the American Association of Textile Chemists & Colorists meeting to be held Oct. 31 and Nov. 1 in Pinehurst, N. C. In addition to a technical program and the annual dinner, there will be golf, tennis, and skeet tournaments.

The association has been asked to cooperate with the United States Government in an investigation aimed at the improvement of woolen and worsted olive drab uniform fabrics with respect to color fastness. As a result of this request, a committee has been appointed to work with the Quartermaster Depot in determining the most suitable dyes and methods of application to produce fabrics that are satisfactory to light, weather, and other color-destroying agencies. Dr. Louis A. Olney, Director of Research for the A.A.T.C.C., is chairman of the committee.

Knitted Outerwear Now 40c Minimum

Unanimous recommendation of minimum wage of 40c an hour for the knitted outerwear industry was made on Aug. 20 by the industry committee which at that time reported to Gen. P. B. Fleming, Wage and Hour Division Administrator. At a previous hearing, both representatives of the manufacturing and labor group spoke in favor of the 40c rate, and there was no opposition to it. At the hearing, however, enforcement of the law was asked of the Administrator, together with some attempt to regulate home work production. A study and

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enforcement plan which would cover the jobber-contractor relationship was also urged.

Record Activity in Wool Manufacture

The highest record of apparel wool consumption ever reported in the United States was made last June. In its monthly bulletin, the National Association of Wool Manufacturers notes that 10,500,000 lb. per week of scoured wool was used in the mills of the country in that month.

The consumption of scoured wool for the first six months of 1941 reached almost 250,000,000 lb. This amount was seven-eighths of the average consumption for an entire year over the last five calendar years. Of this quantity of wool—increased greatly by the defense program—about 60% was of foreign origin. Foreign wool was in larger proportion in the earlier than in the later months when the domestic clip became available; 33,000 more workers being employed last June than in that month in 1940.

Palm Beach for 1942 to Retail at $18.75

At the annual sales convention of the Goodall Co., at Cincinnati, Ohio, early this month, announcement was made that Palm Beach suits for 1942 would retail at the base price of $18.75. This compares with the price current in 1941, before the recent sale, of $17.75. A new line called "Sunfrost" involving spun-rayon and mohair will be offered at a price $6.00 above the standard line. The Goodall Co. has selected Ruthrauff & Ryan, Inc., of Chicago, as the advertising agency to work on advertising and promotion for the 1942 season. This agency takes over the work of L. S. Goldsmith, who has withdrawn as advertising manager of the Goodall Co. Cooperative advertising will be dropped and a national newspaper campaign substituted.

New Full-Fashioned Labor Agreement

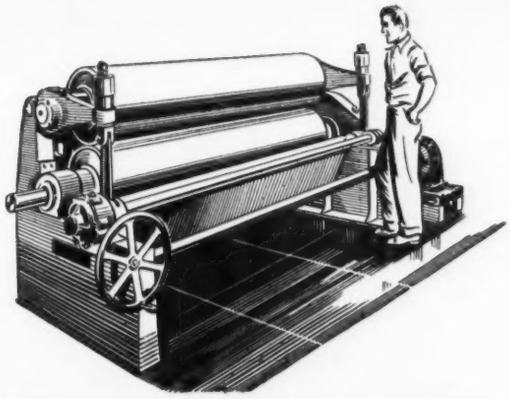
Following negotiations, a new two-year agreement has been entered into by the Full-Fashioned Hosiery Manufacturers of America and the American Federation of Hosiery Workers. The agreement, it is said, calls for wage advances of 8 to 18%, a week's vacation with pay, and a guarantee of no strikes nor lockouts during the period of the contract. It affects approximately 30,000 workers.

Columbia Textile Courses

Evening textile courses at Columbia University, New York, start Sept. 25. Subjects covered include rayon and spun rayon manufacture; textile design; textile chemistry; cotton manufacture; woolen and worsted manufacture; identification, analysis and testing; materials of merchandising. H. R. Mauersberger is in charge of the courses. Instructors include, in addition to Mr. Mauersberger, Mrs. Marguerite Zorach, A. K. Gyzander, Werner von Bergen, G. R. Turner, and Mrs. Helena Marsh Lester.

Safety in Textile Mills

A meeting of the textile section of the National Safety Council will be held on Tuesday afternoon, Oct. 7 in the Stevens Hotel, Chicago. Topics to be discussed are as follows: how to interest the employee in your safety program; the ten most frequent causes of accidents in textile mills; and unusual hazards that have caused serious accidents in the textile industry.



New Micro-Set Padders speed up close matching

"The results obtained from our new Butterworth 2-Roll Micro-Set Padders have greatly surpassed our expectations.

"First, the Micro-Set feature has proved of real value and we are now obtaining, day in and day out, exact matches of shades such as previous experiences had led us to believe were not possible with a padder.

"Second, in addition to obtaining uniform first quality, our output has been substantially speeded up.

"Third, the operation of the machines, particularly color changes, is much facilitated by the stainless-steel rollers and tubs.

"We now have two of these 2-Roll Micro-Set Padders, one 18-inch and one 20-inch. Both these machines are driven by gear-reduction motors, and both are being operated in connection with Simpson Winders."

Here is another example of what *just two* modern machines will accomplish in a dye-house.

It may not be practicable to modernize your entire equipment at one time. But, if you adopt a policy of replacing old equipment as fast as possible with the latest developments, you too will be pleased at the extent to which each installation cuts down costs and boosts quality. Then, when textile production goes back to normal, you will be in position, because of your modern equipment, to meet *any* competition at a *profit*.

Our 121 years of experience in designing and building machinery for the wet end of the Textile Industry is at your service. The mission of our engineers is not only to *sell,* but to consider your problems, make recommendations as to the machines you need, supervise their installation and then see to it that you get the results you want.

Let us tell you how modern machinery, or improved plant layout, will help you to increase quality and production and lower costs.

H. W. BUTTERWORTH & SONS CO.
Phila., Pa., Serving the Textile Industry Since 1820.
Offices: Providence, R. I. and Charlotte, N. C. In Canada—W. J. Westaway Co., Hamilton, Ont.

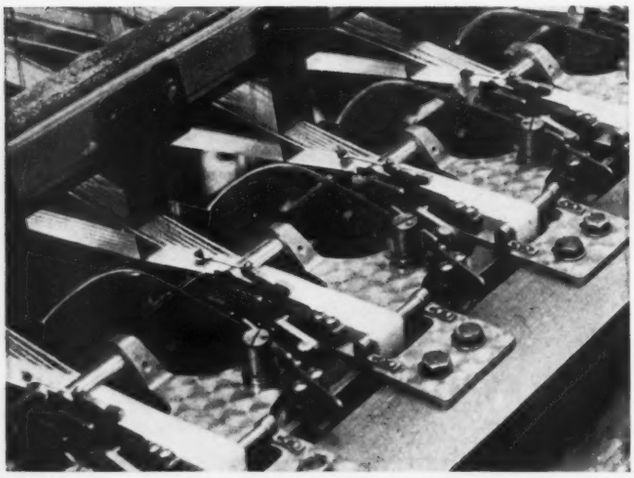
***64%**

of equipment now in use in the wet end of textile finishing cannot operate at a profit in competition with modern machines.

*Proved by Research

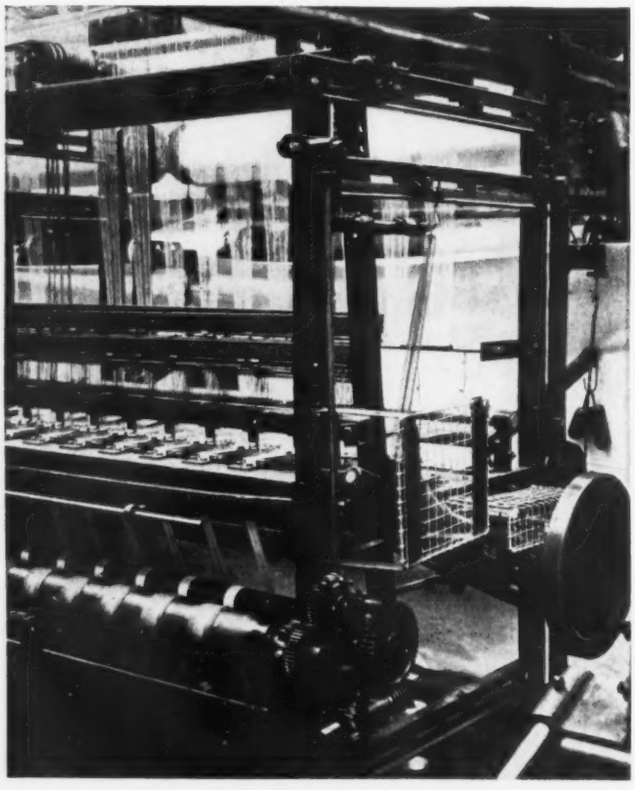
Butterworth

CLUTSOM HIGH SPEED SHUTTLELESS LOOMS . . .



PROVED IN PEACE AND WAR

The most important manufacturers of Webbing, elastic and non-elastic, for the British Armed Forces use the Clutsom Loom. Before and since England went to war millions of yards of webbing have been produced on these machines for the use of the Services. If you have, or are interested in obtaining, Defense contracts we suggest you let us explain to you the many advantages of this loom and give you a demonstration. But whatever you make in narrow fabrics the Clutsom loom will be of interest and value to you.



CLUTSOM MACHINES, INC.

250 WEST 54TH STREET NEW YORK

Telephone: Circle 6-8617

QM'S 1942 Fiscal Year Shaping Up

The Quartermaster is in the midst of its fiscal 1942 procurement program. Within the next few weeks the year's purchases can be summarized, and this will be presented in the next issue of TEXTILE WORLD.

Roughly, 91,000,000 items of soldiers' underwear, by far the most-used garment, numerically, are now on order; 17,000,000 caps of various kinds; 29,000,000 cotton and flannel shirts; 38,000,000 pairs of six kinds of trousers; 18,000,000 pairs of footwear; 27,000,000 items of coats, jackets, overcoats, raincoats, mackinaws, etc.; 45,000,000 pairs of socks, light and heavy wool, and cotton; 13,000,000 pairs of gloves, including some of wool; about 12,000,000 neckties, cotton khaki or black silk and wool; 5,000,000 web belts; 19,000,000 white cotton handkerchiefs; 7,000,000 canvas leggings.

About 41,000,000 pieces of sleeping equipment are on order, giving each soldier a steel bed, mattress, two pillows, three mattress covers, four pillow cases, six wool blankets, and nine cotton sheets. QM has lately awarded 35,000,000 yds. khaki twill to 14 firms in four types—three of combed and one of carded.

Bids on 1,000,000 OD wool blankets for delivery within 150 days will be opened Sept. 15. Bids on 20,657,000 yd. khaki and OD twill will be opened Sept. 19.

More than 36,000,000 yd. of duck is being dyed and finished for QM as part of the 1942 Army tent program. Cloth is being furnished to the successful bidders on the project which involves a new formula recently adopted for use by the Army.

This and That

Nylon fabric with transparent coating is appearing in food bags, bread bags and bowl covers. The strength of Nylon is said to lend these products new virutes.

The Nylon sweater has arrived in retail circles and is being offered by Martin's in Brooklyn at $4.98. It is described as non-crushable, non-shrinkable, and non-shedding. It is apparently made of Nylon staple. Champlain Spinners, Whitehall, N. Y., are producing spun Nylon.

Julius Forstmann Corp. is reentering the men's wear field with a new line of fine woolens and worsteds ranging from tropical fabrics, through gabardines and flannels, up to the rare vicunas.

A sales-training manual for retail stores, prepared by Louisville Textiles, Inc., makers of Fincastle Fabrics, is a new how-to-sell bulletin for drapery and upholstery fabrics and ready-made draperies. Couched in the language of retail salespeople, it contains much information for consumers as well.

A method for gas-proofing wool uniforms has been announced by the Wool Industries Research Laboratory, Leeds, England. The new method will be applied to uniform fabrics for British soldiers and air-raid precaution workers.

Plans are being completed for a new testing laboratory of the National Bureau of Standards, Washington, D. C., and construction is expected to begin at an early date. The new building will cost $500,000 and will house equipment for testing textiles and other materials.

Blends of casein fiber and spun-rayon are employed in new fabrics exhibited by Marvlo Mills at the Southern Garment Manufacturers Association held last month in Atlanta, Georgia. The fabrics exhibited contain from 20 to 40% of casein fiber produced by Aratex Inc., a division of National Dairy Products Corp.

A Nylon fabric for use in screen printing has been developed by Precision Finishing Machines Corp. in cooperation with Stehli & Co., Inc.

I'VE CUT MY SOAP COSTS MORE THAN 30%!

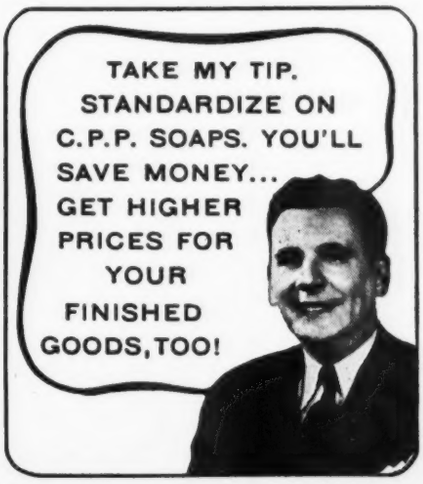
READ WHAT C.P.P. SOAPS AND SERVICE DID FOR ME—

"I WAS HAVING TROUBLE with my dyeing process. My material always came out spotty . . . penetration was uneven. I figured it was due to poor cleansing—but didn't know how to improve it.

"THEN I REMEMBERED the Colgate-Palmolive-Peet FREE Consulting Service. I asked the C.P.P. man to help me. He said his technicians would check my processes . . . see what could be done.

"IN A SHORT TIME he was back again with new formulas based on Standard Colgate-Palmolive-Peet Soaps. He was sure they would wet out properly . . . eliminate 'specks.' I decided to test them!

"RESULTS WERE GRAND! Color was even . . . 'spots' were entirely eliminated, and I found I was actually saving more than 30% on my soap costs."



THIS is a true story. And it's but one of many cases where we have helped manufacturers in all branches of the textile industry.

No matter what *your* processing requirements may be, in the complete line of C.P.P. Products you'll find detergents and wetting agents to *exactly fit your needs.*

And remember: C.P.P. processing agents usually *cost less* to use than so-called "special" products because of the volume in which they are produced. Ask your C.P.P. representative for full information, or write to us. There's no obligation.

COLGATE-PALMOLIVE-PEET CO.

INDUSTRIAL DEPT., JERSEY CITY, N.J.

Meeting Specific Needs

• Virtually every organization in the textile industry can profitably utilize our service. It is adaptable not only to all divisions of the trade, but also to the specific needs of the individual business. We will gladly show you just how our service can be used most effectively by your firm. Consult us, without obligation.

MEINHARD, GREEFF
AND COMPANY, INCORPORATED

51 MADISON AVENUE • NEW YORK CITY

Factoring Founded on Service

NEWS OF THE MONTH

National Association of Finishers of Textile Fabrics announced that the following companies have become members of the association since the previous meeting: Cranston Print Works, Kerr Bleach & Finishing Works, Lanett Bleachery & Dye Works, Metakloth Co., Renfrew Bleachery, Rock Hill Printing & Finishing Co., Southern Bleachery & Print Works, and Union Bleachery.

Standardization of many consumer goods is being considered by the Standards Section, Consumer Division, OPACS. A Standards Advisory Panel is investigating cotton and rayon gray goods.

Seamless hosiery workers in a dozen High Point, N. C., mills received a 5% wage increase, effective Sept. 15. Southern hosiery workers at a Charlotte meeting Sept. 7 voted to demand a 15% raise.

Development of cotton cloth suitable for use in cartridge bags has been announced by the War Department. Specifications for four different grades of cotton fabric for this purpose have been drawn up.

Markets Strong and Moderately Active

Cotton goods demand in early September remains keen, but offerings are scant and consequently transactions are limited. On goods not covered by price ceilings, there was a disposition by sellers to withhold from the market to await Government action. Finished goods prices are strong and have advanced fractionally. Among expanding new uses for cotton is reported to be the use for roofing.

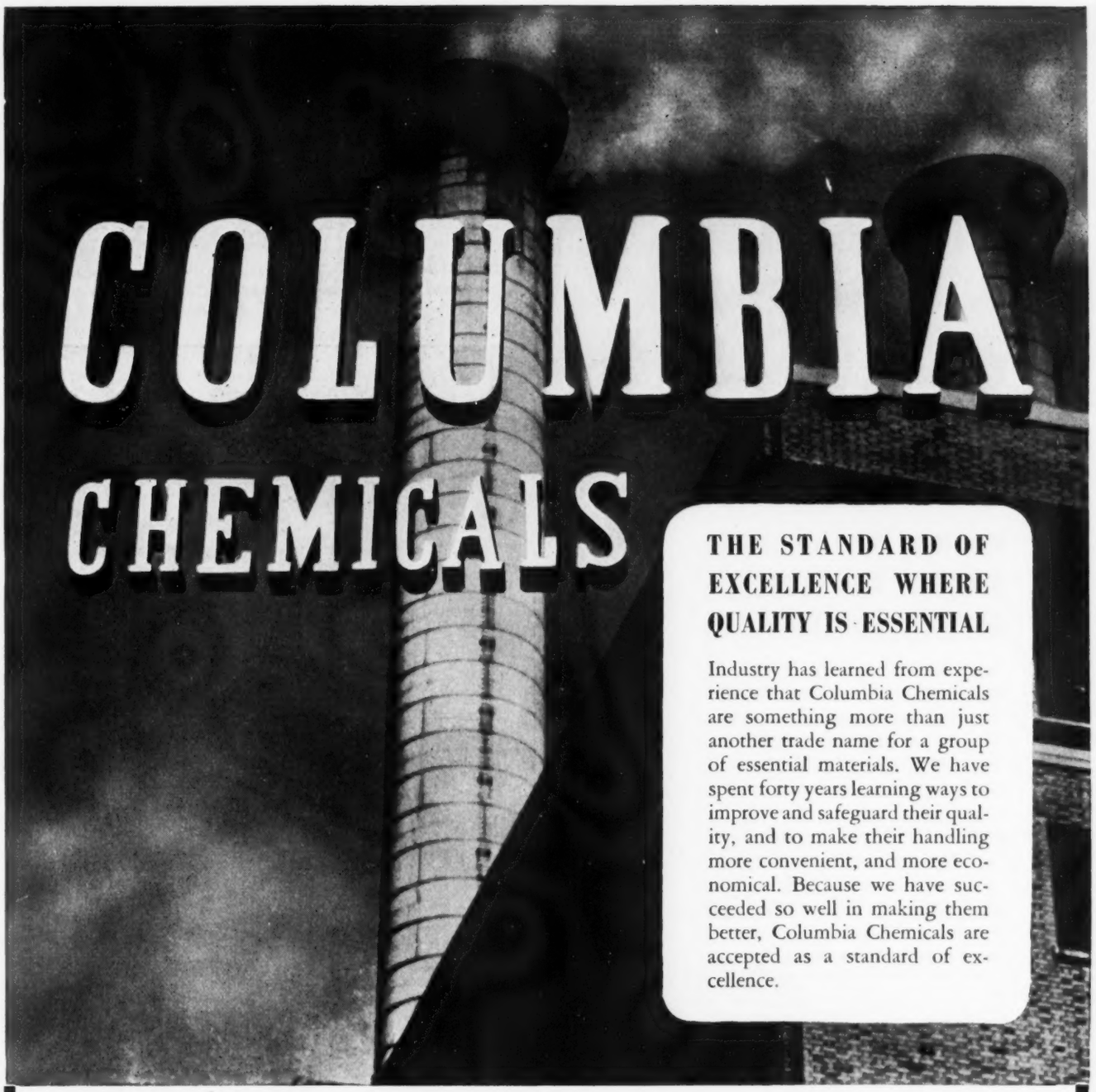
Wool goods prices will doubtless be higher because of the recent wage advance among New England wool mills. Few such price lifts have been made yet since most mills are sold up as far as they care to quote. When lines are reinstated it is believed that they will be at least 10c a yard higher. Women's wear fabrics are not so well sold for spring as men's wear and an advance in price of these materials is expected. The 1941 wool clip in the United States is estimated at 399,941,000 lb., 3% larger than 1940 and 9% above the ten-year (1930-1939) average. It is the largest U. S. production on record. The shortage of shipping enhances the strategic position of wool now in this country and there has been talk of Government control of stocks.

Rayon has been profoundly affected by the virtual elimination of silk from the textile market and the primary producers are being pushed to the limits of their capacity. Rayon fabrics under the ceiling order are not moving as rapidly as in previous months, but mills have large backlogs and the market can benefit by taking business slowly.

Hosiery manufacturers have been quick to get out new and complete lines featuring fine cotton and lisle yarns and various types of rayon. Fine cotton full-fashioned goods cost around $8.25 a doz. There is reported to be an all-Bemberg rayon full-fashioned number at $6.25 a doz. Mills generally are running over 70% full because of the impossibility of running on silk and the unwisdom of running on rayon or cotton until a sufficient backlog of orders builds up.

Underwear buyers are pressing mills for delivery of heavyweight garments for fall distribution. There are still available offerings of men's lightweights for deliveries before the end of the year although several mills have recently withdrawn their offers.

Knitted outerwear for the Christmas season is being offered and buyers are showing interest. Prices are generally higher not only because of higher raw material costs, but because of the prospective increase in minimum wage rates to 40c. There is a turn to buttoned effects and away from zippers because of the scarcity of the last named item. Further use of rayon is likely because of the higher prices of woolen and worsted yarns.



THE STANDARD OF EXCELLENCE WHERE QUALITY IS ESSENTIAL

Industry has learned from experience that Columbia Chemicals are something more than just another trade name for a group of essential materials. We have spent forty years learning ways to improve and safeguard their quality, and to make their handling more convenient, and more economical. Because we have succeeded so well in making them better, Columbia Chemicals are accepted as a standard of excellence.

ESSENTIAL INDUSTRIAL CHEMICALS

SODA ASH • CAUSTIC SODA • SODIUM BICARBONATE • LIQUID CHLORINE
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HERE'S THE
Proven & Guaranteed
FLUORESCENT LIGHTING SYSTEM

• • • That's 30% to 50% cheaper to install!

• • • That provides 50 Foot Candles or better!

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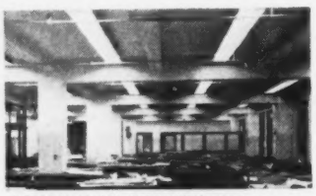
IVANHOE
"50 FOOT CANDLER"
RLM *Continuous Wireway*
FLUORESCENT
LIGHTING SYSTEM

FAIRCHILD AVIATION CORP. employees get 50-55 foot candles of light for fine inspection and assembly jobs with "50 FOOT CANDLER" in this new plant addition.



COMBUSTION ENGINEERING Co. use their new "50 FOOT CANDLER" lighting system to give draftsmen 60-65 foot candles of unmatched working light.

UXBRIDGE WORSTED CO. use many rows of "50 FOOT CANDLERS" in their weave rooms. Here workers have the production aid of 50 foot candles of well-diffused illumination.

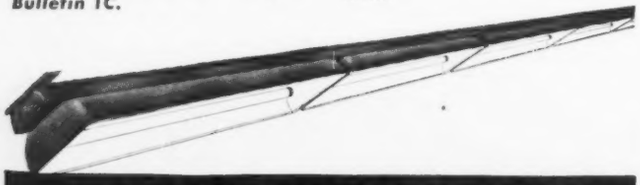
• Two years ago IVANHOE "50 FOOT CANDLER" was introduced as the first RLM Continuous Wireway Fluorescent Lighting System providing new higher levels of overhead illumination. Now its merits have been *proven* in such outstanding organizations as Fairchild Aviation Corp., Uxbridge Worsted Co., Combustion Engineering Co., General Electric Co., Curtiss-Wright Corp., and many others. Hundreds of miles of "50 FOOT CANDLERS" are today giving satisfaction in key Defense plants, industry and business.

"50 FOOT CANDLER'S" continuous wiring channel (containing all necessary auxiliaries and up to 80 per cent of conduit) means installation savings of 30 to 50 per cent. Speedy installation, too—with no slow-up of production while lighting is going in. Easy-to-remove, porcelain-enameled reflectors lick maintenance headaches.

IVANHOE "50 FOOT CANDLER" can give you these *proven* lighting benefits in your establishment. *Write for helpful Bulletin 1C.*

• • •

MILLER OFFERS A COMPLETE LINE of incandescent and fluorescent lighting equipment, backed by almost 100 years of commercial and industrial lighting specialization. There is an answer to your problems in this unbiased lighting service.



THE MILLER COMPANY
MERIDEN, CONN.
Pioneers in Good Lighting Since 1844

To Identify Delta Cotton

New program will prevent unethical substitution of other growths

THE PROGRAM for permanent identification of Delta-grown cotton is under way with the beginning of the new crop movement. The project, which is bi-lateral, is sponsored by the Yazoo-Mississippi Delta Council of which H. L. Gary is president and which has its headquarters at Stoneville, Miss.; and the Agricultural Council of Arkansas of which H. M. Brinkley is president, with headquarters at Marianna, Ark.

This program is the result of many years' agitation on the part of the Southern Combed Yarn Spinners' Association, whose members purchase approximately 500,000 bales of Delta-grown cotton annually. It is alleged by the spinners that on many occasions western cotton has been shipped to points near Memphis, stripped, compressed and re-tagged as Delta, then sold to mills under false colors.

This practice clearly came under Section 5 (a) of the Act Amending the Act Creating the Federal Trade Commission. Up until now, however, there has been no way of identifying

DISPLAYING THE NEW DELTA COTTON IDENTIFICATION TAG at meeting of Delta Council Aug. 6. Left to right: Homes McNamara, chairman, Bale Tagging Committee; Mildred G. Barnwell, executive secretary, Southern Combed Yarn Spinners Association; Hugh L. Gary, president, Delta Council

bootlegged cotton as such until the mill had its yarn rejected when streaks showed up in the dyeing and finishing processes since Delta cotton and western cotton—both excellent staples—take different finishing and dyeing. With the new system of marking inaugurated by the two Councils representing planters, shippers, compressers, and ginners, use of a Delta tag on any cotton other than that grown in the Delta becomes a misdemeanor and subject to the penalties of the above act.

The purpose of the program is to so mark all cotton bales originating in the fertile, alluvial sections known as the Delta, which includes an area both in Mississippi and in Arkansas, that the cotton will be easily identified when received at the mill, and at the same time to prevent the practice of unethical shippers substituting western growth for Delta cotton in their commitments to the mills.

The Delta Council method of administrating the program is as follows: An administrative committee composed of the Delta Council president, H. L. Gary, and the chairman of the

Where America's first spinning wheels hummed...

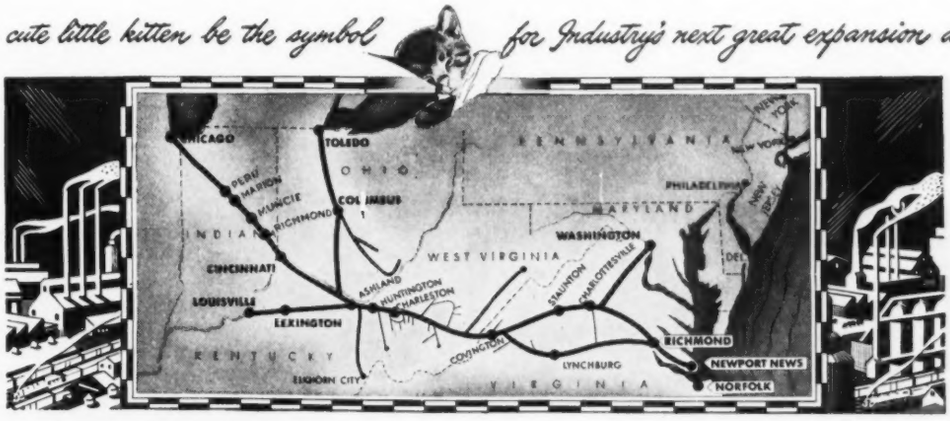
GONE are spinning wheels the pioneer carried westward along the route surveyed by George Washington, now known as *The Chessie Corridor.* In those days, a woman's foot working a treadle . . . today, billions of mechanical horsepower turning the myriad wheels in *The Chessie Corridor.* "Industry's next great expansion area," they call it . . . because, among other advantages, here is abundant power, developed from coal and oil and natural gas, transformed into low-cost steam and electricity.

Here, too, are industry's raw materials in mines and farms and forests. Here live skilled and willing workers. And close at hand are industry's major markets. Doubtless the resources and conditions *your* business requires are here in plenty. If they are, you should know all about them!

FACTS . . for the man who makes decisions

Information on this important area is now organized and available in a new 56-page book you'll be proud to have in your library—"*The Chessie Corridor* —Industry's Next Great Expansion Area." This beautiful book is a graphic survey of the resources, conditions and opportunities which beckon industry to *The Corridor.* Copies will be mailed to business executives requesting them from INDUSTRIAL DEVELOPMENT SERVICE, Chesapeake and Ohio Lines, Huntington, W. Va.

"Will a cute little kitten be the symbol for Industry's next great expansion area?"



THE CHESSIE CORRIDOR ★ *Served by CHESAPEAKE and OHIO LINES*

BEATS THE DUTCH!

AROOSTOOCRAT

Highest Quality

POTATO STARCH

Made in AMERICA by EUROPEAN METHODS

UNIFORM QUALITY GUARANTEED

The big name in Starch today is AROOSTOOCRAT — the starch that equals, some say BEATS, the finest European product of yesterday. Made here by European methods and the same careful laboratory-controlled processing that has set a new standard of starch quality. AROOSTOOCRAT COSTS no more than ordinary starches—and is immensely superior and more economical than cheap starch. In quality and in UNIFORMITY it is THE starch today for the textile industry. Try it once and you'll use it always.

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This Book will interest you . . .

I want to know WHY and HOW Aroostoocrat "beats the Dutch". So send me your booklet that describes its processing. Send me a copy TODAY.

Name .....

Mill Address .....

OSCAR JOHNSTON heads the Brunswick-Stew line at the Delta Council meeting on Aug. 6

Bale Tag Committee, H. C. McNamara, and one representative from each of the following interests—compressers, factors, shippers, spinners, ginners and producers—will direct the program. The tags are copyrighted and will be sold at 2¢ each and carefully distributed by the Administrative Committee. They will have a standard Delta design of an oldtime stern-wheeler such as plied up and down the Mississippi bends years ago; but in addition each tag will give name of plantation on which cotton was grown, date, and serial number allotted to the gin. In case any falsification turns up it can be immediately traced to the guilty parties. A similar method of administration is being planned by the Arkansas Council.

Bonds and Stamps for Defense!

Government urges saving to build a rainy-day reserve

THE AMERICAN PEOPLE are saving at the rate of $100,000,000 a week! This is an official announcement by the Treasury Department that Americans are giving Uncle Sam $100,000,000 a week to save for them—and receiving in return Defense Savings Bonds and Stamps.

Bankers, businessmen, bakers, farmers, factory workers, shop girls, housewives—virtually all American men, women and children from all walks of life—are cooperating in the Government program to build up a rainy-day reserve. In many States, employers are establishing systematic savings plans in cooperation with their employees. Labor and industry both have endorsed the Savings Program of the Government.

In this period of unlimited emergency, vast requirements are being made of industry by the Federal Government. Wheels are turning at top speed to produce the weapons of defense. As a result, the national income is jumping sharply. Wages and salaries are increasing. So, too, is employment. Money is more plentiful.

If the people of the country spend a lot of money now, there may be a let-down afterwards. The Defense Savings Program of the Treasury Department involves the sale of Federal securities to as many people as possible in an effort to build as large a reserve as possible against any slump which follows the end of America's all-out war production.

The cash involved in the purchase of Defense Savings Bonds is put to work at once to protect the freedom of the country. At the same time, the bond protects the individual against financial consequences of a post-war readjustment.

The Series E bonds may be bought for $18.75, $37.50, $75.

KEEP PRODUCTION

at

FULL uninterrupted SPEED

by

Using Loom Harness equipment that has been designed, engineered and scientifically manufactured for the warp thread being woven.

QUALITY LOOM HARNESS EQUIPMENT

Stehedco

products have built into them that something that spells dependability. Such products and policy have made four large plants necessary to take care of the demand for these Super Quality products. There is a Specialized Field Engineer in your district to assist and consult with you.

BRANCH OFFICES ALL OVER THE WORLD

Steel Heddle Mfg. Co.

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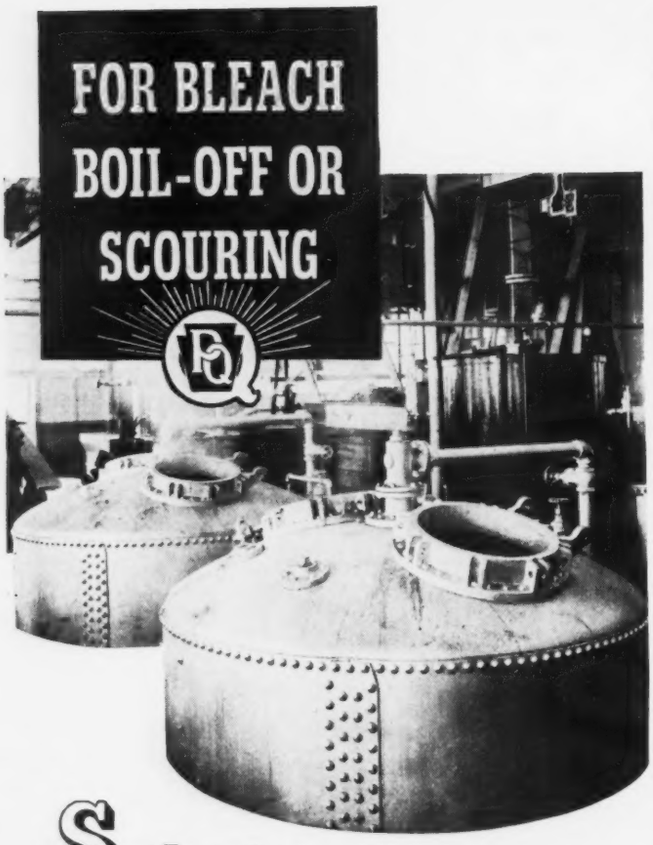
FLAT STEEL HEDDLES—HARNESS FRAMES—ALL TYPES OF LOOM REEDS—
TEMPERED DOGWOOD SHUTTLES—LOOM HARNESS ACCESSORIES

2100 W. Allegheny Avenue Philadelphia, Pa.

FIELD ENGINEERS IN EVERY DISTRICT



Select a PQ Silicate Assistant

Do you need to step-up performance from each pound of soap or bleach? PQ Silicates of Soda can help you.

The scientifically controlled silica-alkali ingredients of PQ Silicates supply important improvements such as:

Rapid emulsification of oil and wax
Suspension of removed dirt
Prevention of redeposition of removed dirt
Controlled release of bleach

See the difference in the cleaner, whiter yarns and piece goods processed with the aid of PQ Silicates, and avoid cost-boosting re-runs.

PQ Silicates for Textile Processing

STAR BRAND—a clear, brilliant solution, 42° Baumé, prepared especially for use in bleaching.
METSO GRANULAR—pure sodium metasilicate ($Na_2SiO_3.5H_2O$), granular salt. Used in numerous detergent operations.

PHILADELPHIA QUARTZ CO.

General Offices and Laboratory: 125 S. Third St., Philadelphia, Penna. Chicago Sales Office: 205 W. Wacker Drive. Stocks in 65 cities. Sold in Canada by NATIONAL SILICATES LTD., Toronto, Ontario

PQ

SILICATES OF SODA

$375 and $750. They grow in value in ten years to $25, $50, $100, $500 and $1,000, respectively. The annual investment yield is 2.9% a year, compounded semi-annually, when a bond is held to maturity in accordance with a table of redemption values printed on the face of the bond.

Series F, also an appreciation bond, is issued at $74, $370, $740, $3,700 and $7,400. These bonds mature in 12 years to $100, $500, $1,000, $5,000 and $10,000. Series G is designed to meet the demand for a current income bond. These are issued at par and may be purchased in denominations of $100, $500, $1,000, $5,000 or $10,000. Series G bonds bear interest of 2.5% paid semi-annually by Treasury check.

Defense Savings Stamps are for the convenience of purchasers who cannot afford to pay $18.75 at any one time. These stamps, on sale at post offices throughout the country and at many other outlets, are issued with handy devices for safe keeping. These are issued in 10c., 25c., 50c., $1 and $5 denominations which may later be exchanged for a bond. These stamps will soon go on sale in nearly all retail stores throughout the country.

At a recent meeting, retailers endorsed full participation in "Retailers for Defense" Week, Sept. 15 to 20, when the stores of every State will concentrate their efforts to enlist customers to buy Defense Savings Stamps. Before that time, most stores from coast to coast are expected to have Defense Stamps on sale.

Garment Makers Gather

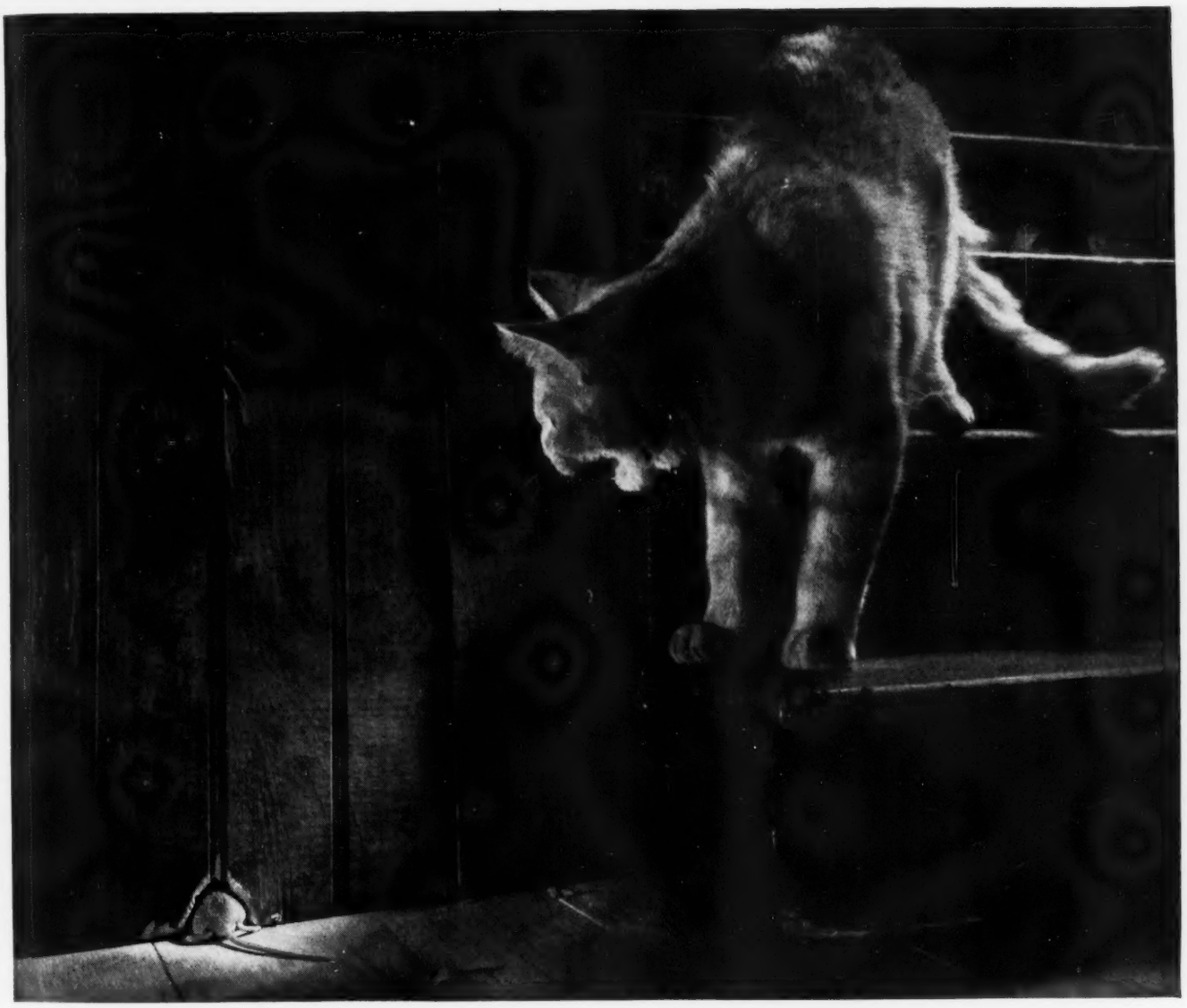
W. J. Vereen again elected president of Southern Association

THE SOUTHERN GARMENT MANUFACTURERS ASSOCIATION held its ninth annual convention at the Biltmore Hotel, Atlanta, Ga., Aug. 24 to 27 with a record breaking attendance of 350 members and guests. More than 50 firms catering to the trade maintained attractive and informative exhibits.

William J. Vereen, vice-president, Moultrie (Ga.) Cotton Mills, president, Poulan (Ga.) Cotton Mills, and of Riverside Mfg. Co., Moultrie, Ga., was unanimously reelected president of the association. As was to be expected, the programs reflected the influence of Government contracts. Bidding, buying, cooperation, specifications, requirements, safeguards—these and other matters of interest were discussed.

President Vereen in his address struck the keynote of the convention. "Whether it is war or peace," he said, "the road

Left to right: Capt. Albert Dennis, Contracting Officers Office, Philadelphia QM Depot; Maj. John P. Baum, Quartermaster General's Office, Washington; William J. Vereen, president; Maj. George P. Christie, Jr., General Superintendent of Manufactures and Clothing Designer, Philadelphia QM Depot; George H. Barnes, vice-president



Fairbanks Dial Scale head with Printomatic weigher. Prints weights and related data on tickets, roll tape, ticket and tape . . . even on sheets as wide as 18 inches.

DISCOVERED!

● The bigger they are, the easier to catch. It's the causes of small losses that are hard to discover.

Inaccurate weighing often causes only a negligible loss *each time.* But the total by the year can be of staggering importance.

Experienced Fairbanks Scale men quickly find the causes of inventory losses due to inaccurate or careless weighing. They can prescribe weighing methods which assure absolute adherence to formulae in mixing dye or bleach baths . . . methods which *keep ingredient proportions secret,* if you wish. They can provide scales which print weight records and add up weights and record totals.

The knowledge and experience of Fairbanks Scale engineers are at your service. Write Fairbanks, Morse & Co., Dept. I-204, 600 South Michigan Avenue, Chicago, Illinois. Branches and service stations throughout the United States and Canada.

FAIRBANKS·MORSE SCALES

DIESEL ENGINES ELECTRICAL MACHINERY RAILROAD EQUIPMENT WASHERS-IRONERS STOKERS
PUMPS MOTORS WATER SYSTEMS FARM EQUIPMENT AIR CONDITIONERS

Impure Water Costs More Than Pure!

Balance the few extra cents per thousand gallons of 100% soft, clear, iron-free water against the expenses caused by impurities and you'll find it really *pays* to install a

HUNGERFORD & TERRY WATER PURIFICATION SYSTEM

In dye houses and finishing plants throughout the country these compact, efficient units are supplying the kind of water that assures top quality fabric with perfect dye-matching and the minimum of spoilage. Saves amazingly, too, on soaps, oils and detergents . . . Glad to make a survey of your water supply without fee or obligation . . . Write us today.

HUNGERFORD & TERRY

WATER PURIFICATION PLANTS DESIGNED
INSTALLED *and* GUARANTEED
CLAYTON, NEW JERSEY

ahead for this industry in again reaching an era of even partially normal stabilization is a hard one. Be that as it may, this industry will meet every challenge of its strength, and will rise to a position of greater usefulness and worth to the public it serves."

Touching on Government control and regulation, he said, "While American interests should support the foreign policy of our Government, they must NOT relax efforts to maintain a consistent domestic economy under which they must live. We see the evolution of powers for the control of the daily livelihood of our people increasing at an alarming rate. And while we all recognize that more public authority must be exercised during emergency periods than in normal times, yet that vigilance necessary to control such established authority should not be relaxed for one minute. It is only reasonable to insist that controls over industry, such as priorities and price control, should be worked out in cooperation with representatives of the industries to be affected; that legislation should be enacted which will guarantee those who, at the request of the Government, enter into cooperative plans for national defense, will not later be punished under the anti-trust laws; that the tremendous cost of the defense program should be off-set as far as possible by economies and retrenchments in non-defense Government spending; that Government policies should be such as to protect the system of private enterprise to the fullest extent."

From Army circles and Government agencies the arrangement committee secured Capt. Albert Dennis, Robert J. Dillon, Col. T. W. Jones, Maj. John P. Baum, Maj. George P. Christie, and J. P. Davis, all of whom contributed valuable information relating to Government methods, purchases, contacts, etc.

P. D. Houston, of Nashville, Tenn., president, American Association of Bankers, and Donald B. Tansil, of Boston, vice-president, Pepperell Mfg. Co., spoke. Mr. Houston said the South has at last come into its own, "the theory that the people were 'doomed to the land' has been completely exploded." Mr. Tansil spoke of cooperation between buyer and seller, difficulties of deliveries, safeguards in the matter of future relations, and submitted practical suggestions.

The Resolutions Committee presented a resolution committing the association to full cooperation with Donald Nelson, Director of Purchases of OPM, on simplification of standards and elimination of unnecessary sizes; Second, a resolution pledging the association's complete cooperation with the Quartermaster General's Philadelphia and Washington offices; Third, a resolution favoring the enactment of a constructive statute to control inflationary prices with the least possible confusion.

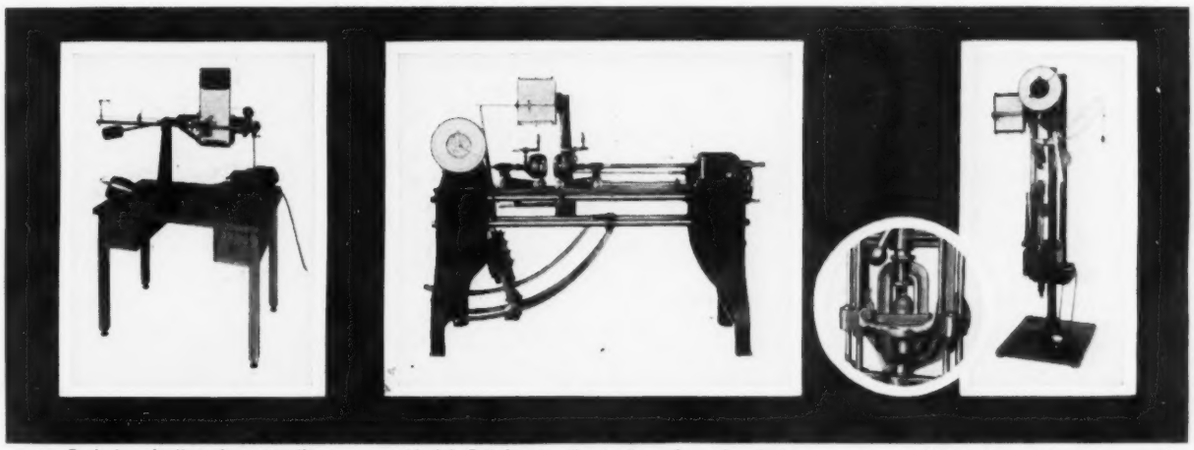
Wool Wage Minimum to Be Increased

A committee to investigate and recommend a new minimum wage for the wool-textile industry was appointed Sept. 3 by Gen. Philip B. Fleming, Wage-Hour Administrator. The Committee will meet in Washington, Sept. 24 at 10 a.m. in Room 3229, Department of Labor. Any person wishing to be heard should communicate with Burton E. Oppenheim, Wage and Hour Division. Since June 17, 1940, the woolen industry has been operating under a 36c minimum which increased the wages of about 12,000 of the 150,000 workers engaged. The employer and employee members of this committee are the same as those of the original committee with three exceptions. The "public" members are all new. Robert P. Brecht of the Wharton School of Finance and Commerce, University of Pennsylvania, is chairman. The employer representatives are Willard H. Cummings, Daniel E. Cummings Co., Newport, Me.; J. L. Hutcheson, Jr., Peerless Woolen Mills, Rossville, Ga.; Harold Walter, Uxbridge Worsted Co., Uxbridge, Mass.; John H. Halford, James Lees & Sons Co., Bridgeport, Pa.; Moses Pendleton, American Woolen Co., New York.

PARACHUTES.. OR.. PAIR O' SHORTS

*SCOTT TESTERS

MEET EVERY PHYSICAL TESTING NEED



Exclusive Incline-plane tensile tester. Tests from single fibres to 2,000 grams.

Model Q-3 for tensile testing of cords, duck, webbing, etc., up to 2,000 lbs.

Model J for tensile testing of yarn or cloth. Burst test attachment available.

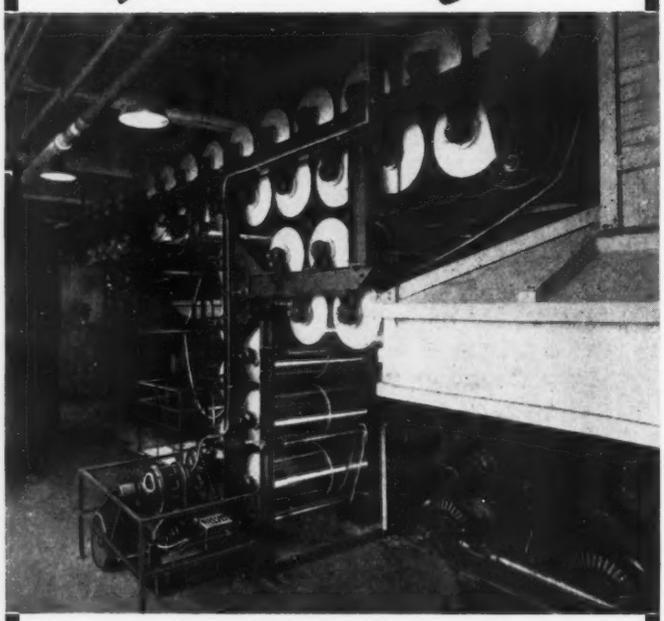
MORE than 60 models of *Scott Testers provide for all textile tests (including rubber thread); tensile, hysteresis, flexing, adhesion, burst, etc. Capacities range from a single fibre to 2,000 lbs. tensile. Because Scott machines incorporate many exclusive, advanced features, leading technical societies, industrial associations, and government bureaus have formulated standard tests based on these testers. By using *Scott Testers (equipped with autographic recording if desired) you employ accepted language of physical standards in dealing with laboratories, suppliers and customers. Literature promptly sent, upon request to Henry L. Scott Co., 101 Blackstone St., Providence, R. I.

*Trademark Registered

Scott Testers — Standard of the World

SPEED OF DYE MACHINE AND 42 DRY CANS

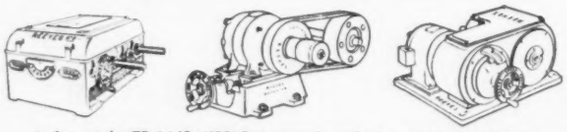
Synchronized



Another problem in synchronization is handled by this REEVES Variable Speed Transmission with hydraulic control. A stack of 42 dry cans and a continuous dye machine ahead of it are each driven by separate motors, for which push button stations are located and operated together. REEVES hydraulic control is operated from compensator roll. When dry cans and dye machine are started, control operates Transmission to speed up or slow down cans for perfect synchronization with dye machine; also maintains uniform tension on cloth. Get *all* the advantages of accurate, variable speed control in *your* processes. Write us.

REEVES PULLEY COMPANY, Dept. W, COLUMBUS, INDIANA

THE 3 BASIC UNITS IN MODERN REEVES LINE



Left to right: TRANSMISSION provides infinite speed adjustability over wide range, 2:1 to 16:1 inclusive; modern, compact, open and enclosed designs in sizes up to 87 H.P. . . . VARI-SPEED Motor Pulley, simple, direct drive for requirements from fractional to 15 H.P. 3:1 range. MOTODRIVE combines motor, speed varying mechanism and reduction gears; sizes to 10 H.P.; ratios of speed variation, 2:1 through 6:1.

Reeves

SPEED CONTROL

NEWS ABOUT MEN

Robert R. Spilman, president of Appalachian Mills Co., Knoxville, Tenn., has resigned his position with that company. Mr. Spilman was with the firm for 20 years, for the last three of which he was president. **Alfred Brownlee,** vice-president, will be acting head.

James F. Quinn has been named manager of the Cleveland regional office of the U. S. Department of Commerce. Mr. Quinn has been with the department for several years, prior to which he spent much time in the foreign trade division of large catalog houses.

William W. Stewart, secretary-treasurer of Southeastern Cottons, Inc., New York, was chosen chairman at the recent 24th Annual Conference on Industrial Relations at Silver Bay, Lake George.

James W. Ferguson, recently a director and general counsel of Mohawk Carpet Mills, Amsterdam, N. Y., has been elected president of the corporation succeeding the late George W. McNeir.

George A. Urlanb has resigned as executive director of the Throwsters Research Institute, New York, and will resume his consulting and technical service.

Stanley B. Hunt, of Textile Economics Bureau, has been spending recent weeks in Washington as consultant attached to the research and statistics branch of the Office of Production Management. He has been making a study of rayon priorities as affected by the silk situation.

John A. Spooner, advertising manager, American Viscose Corp., New York, was recently a guest speaker on the "Symbols of American Ideals" program presented over radio station WIP of Philadelphia. Mr. Spooner described the benefits accruing to the American public as a result of the American industrial system.

Robert J. Dillon of New York, president of Blue Ridge Overalls Co., Roanoke, Va., has been made Chief of the Clothing Section in the Clothing, Equipage and Textiles Branch of OPM, **Kenneth W. Marriner,** director and general manager of Winslow Bros. and Smith Co, Boston is now consultant on wool in the Clothing, Equipage and Textile Branch.

Lewis A. Hird, treasurer of Samuel Hird & Sons, Passaic, N. J., was appointed chairman of the finance committee and member of the investment committee of Rotary International by **Tom J. Davis** of Butte, Montana, the organization's president.

E. O. Steinbach has been made executive vice-president and general manager of Mayfair Mills, Arcadia, S. C. He was formerly general manager of Florence Mills, Forest City, N. C., where **Yates Smith** has succeeded him. Mr. Smith, previous to his new connection, was secretary-treasurer of Gainsville (Ga.) Cotton Mills.

R. W. Arrington, president of the Union Bleachery, Greenville, S. C., has been named vice-chairman of Greenville (S.C.) Housing Authority, which will supervise an $800,000 project.

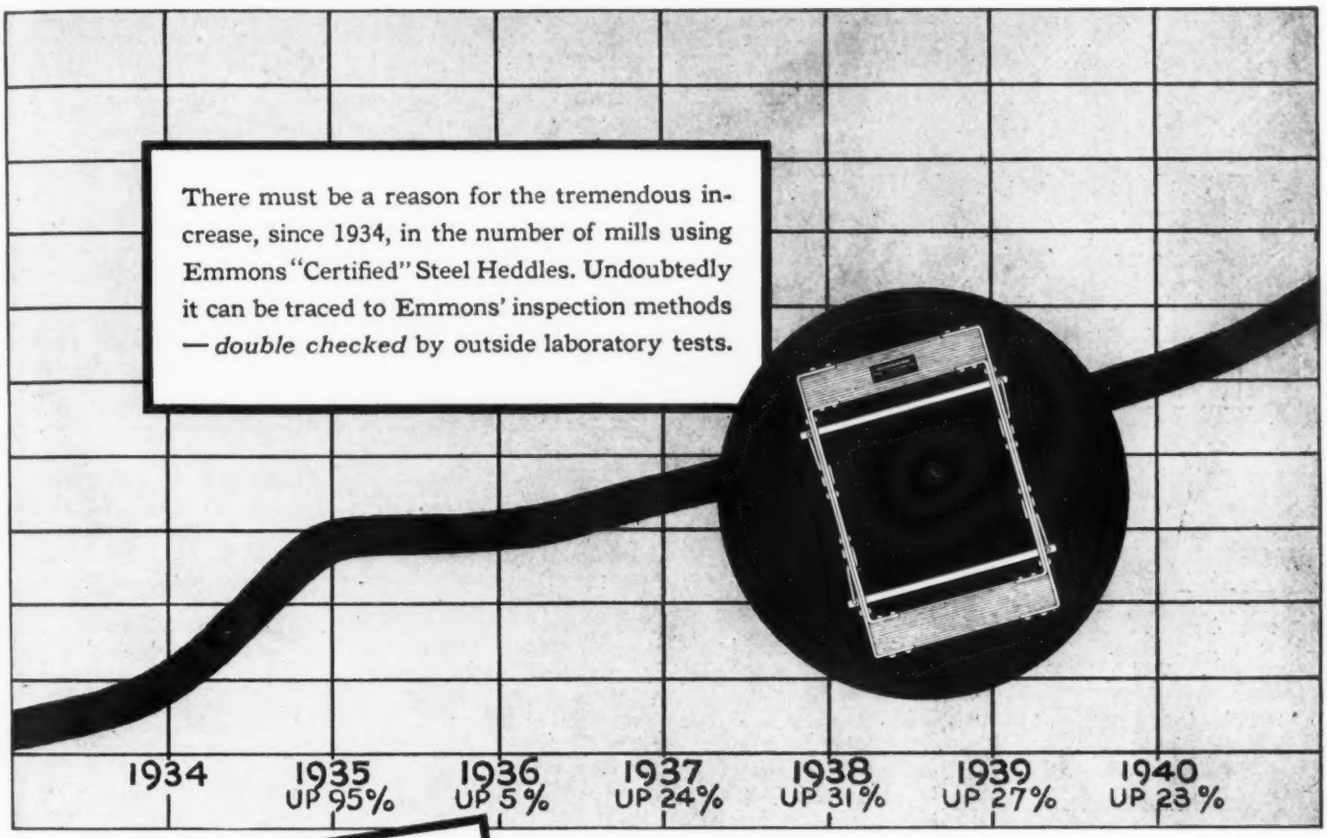
Herman Cone, president of the Proximity Mfg. Co., Greens-

FERDINAND THUN of Berkshire Hosiery Mills and Textile Machine Works, Reading, delivering the address of acceptance of the Naval Ordnance Flag and the Navy "E" Pennant recently presented by the Navy Department to Textile Machine Works for excellence in production of defense materials. Presentation was by Admiral A. E. Watson and the event was reported in this paper last month.

THIS RISING CURVE OF CONFIDENCE

IN EMMONS PRODUCTS

MEANS *MORE SECURITY* FOR YOUR MILL


There must be a reason for the tremendous increase, since 1934, in the number of mills using Emmons "Certified" Steel Heddles. Undoubtedly it can be traced to Emmons' inspection methods — *double checked* by outside laboratory tests.
1934
1935 UP 95%
1936 UP 5%
1937 UP 24%
1938 UP 31%
1939 UP 27%
1940 UP 23%

Wider Representation Follows Increasing Sales — Immediate Service from these Experienced Emmons Salesmen:

CLIFTON WATSON: Mgr. Southern Sales, Box 2036, Charlotte, N. C., Tel. Charlotte 3-7503

ARTHUR HARRIS: Box 1982, Atlanta, Ga. Tel. Main 2643

ALVIN BRALEY: Box 236, Itasca, Texas Tel. 170

W. S. TAYLOR: 171 Madison Ave., New York City. Tel. Lex. 2-6060

Like all Emmons products, Emmons Heddle Frames undergo rigid inspection before being put to work in your mill. Weavers like to work with these frames. Maintenance men appreciate their lasting rigidity, the carefully-smoothed handpicked lumber, and the 2 coats of shellac that keep them in condition. The "Inspected and Approved" seal means Emmons precision workmanship throughout.

WAREHOUSE STOCKS: Emmons products, including standard sizes of flat heddles, are stocked in Charlotte and Atlanta. Emmons "Multiple Yarn Space" Reeds manufactured in Charlotte.

Get the most out of your loom harness equipment by writing — today — for our catalog describing Emmons products.

Emmons Loom Harness Company
Lawrence, Mass.

Please send me your booklet of loom harness equipment.

NAME.....

COMPANY.....

ADDRESS.....

EMMONS

LOOM HARNESS COMPANY

LAWRENCE, MASS. . . . CHARLOTTE, N. C.

On the bleak dunes of Kitty Hawk, the Wright Brothers planted a new milepost, marking man's triumphant march along the road of industrial and social progress.

Denman and Terrell organizations have worked hand-in-hand to maintain the constant development, testing, and improvement of DENMAN Fabric Loom Parts—the *first* to combine the extra toughness and lasting resiliency necessary to withstand the tremendous strain of high-speed loom operation. Year after year, these two organizations have devoted their combined abilities, in the factory and in the field, to establishing and maintaining ever-higher standards of quality—safeguarding the outstanding performance and proven economy that have made DENMAN Loom Parts first choice of the country's leading textile mills.

For LOWEST COST PER LOOM PER YEAR Specify DENMAN

PICKERS • LUG STRAPS • HOLD UPS • ETC.

The **Terrel Machine Co.,** *Inc.*

CHARLOTTE, N. C.

James F. Notman, Needham, Mass.—N. E. States
E. W. S. Jasper, Inc., Elizabeth, N. J.—Penn. and N. J.
Geo. Thomas & Co., Manchester, Eng.—European Agt.

boro, N. C., has been appointed by Governor Broughton of North Carolina, a member of the board of trustees of the Stonewall Jackson Training School, Concord, N. C., for a term of four years.

Iser Peter Cohen, formerly head of Cohen Bros. Corp., and for more than 50 years in the knitwear business, has become vice-president in charge of sales for Elgin Knit Sportswear, Inc., New York.

William G. Cluett, formerly vice-president and general merchandise manager for Cluett, Peabody & Co., Inc., New York, has been appointed to the textile division of OPACS, Washington. He will regulate the allocation of textiles available to civilian industry after filling national defense requirements.

Stanley E. Selonick, for the last seven years in charge of the boys' and students' department of the Goodall Co., Cincinnati, Ohio, has been appointed general sales manager of the company, succeeding **Joseph Stevens,** who is assuming additional executive duties in connection with the company's plans for the 1942 campaign on Palm Beach suits. **L. S. Goldsmith,** who for the last 26 years has handled the Palm Beach advertising and promotion, has retired as advertising manager of the Goodall Co.

C. Thurston Woodford, who has been with McCampbell & Co., New York, since 1927, has been elected vice-president of that firm.

Charles S. Fowler, general manager of the Hartford Rayon Corp., Rocky Hill,

Textile Men in Armed Services

Major Elliott Springs, Fort Mill, S. C., president of Springs Cotton Mills, now in the aviation department of the U. S. Army, stationed at Camp Croft, S. C., has presented Headquarters Co., Third Battalion, 118th Infantry, of Chester, S. C., now stationed at Fort Jackson, near Columbia, S. C., with a check for $1,000 for the "Company Fund." It is understood that Major Springs has made similar gifts to the military company of each town in which the Springs Mills have a plant, Lancaster, Fort Mill, Kershaw, and Chester.

E. M. Anderson, secretary and assistant treasurer of Jackson Mills, Wellford, S. C., unit, has been called to active military service, with the rank of lieutenant colonel in the coast artillery, and has been stationed at Camp Stewart, Ga.

Bernard Blumenthal, of Orchard Yarn & Thread Co., New York, is now at Camp Hulen, Tex., as a member of Battery C of the 69th Coastal Artillery.

Isaac Steiner of New Bedford, Mass., winner of the NACM medal as leading student at the New Bedford Textile School, has obtained a position in the U. S. Army Quartermaster's Depot in Philadelphia.

George A. Dorr, Jr., treasurer of the Dorr Woolen Mill in Newport, N. H., has left for a year of military duty. He was given a farewell dinner by executives and overseers of the plant. His father is president of the company.

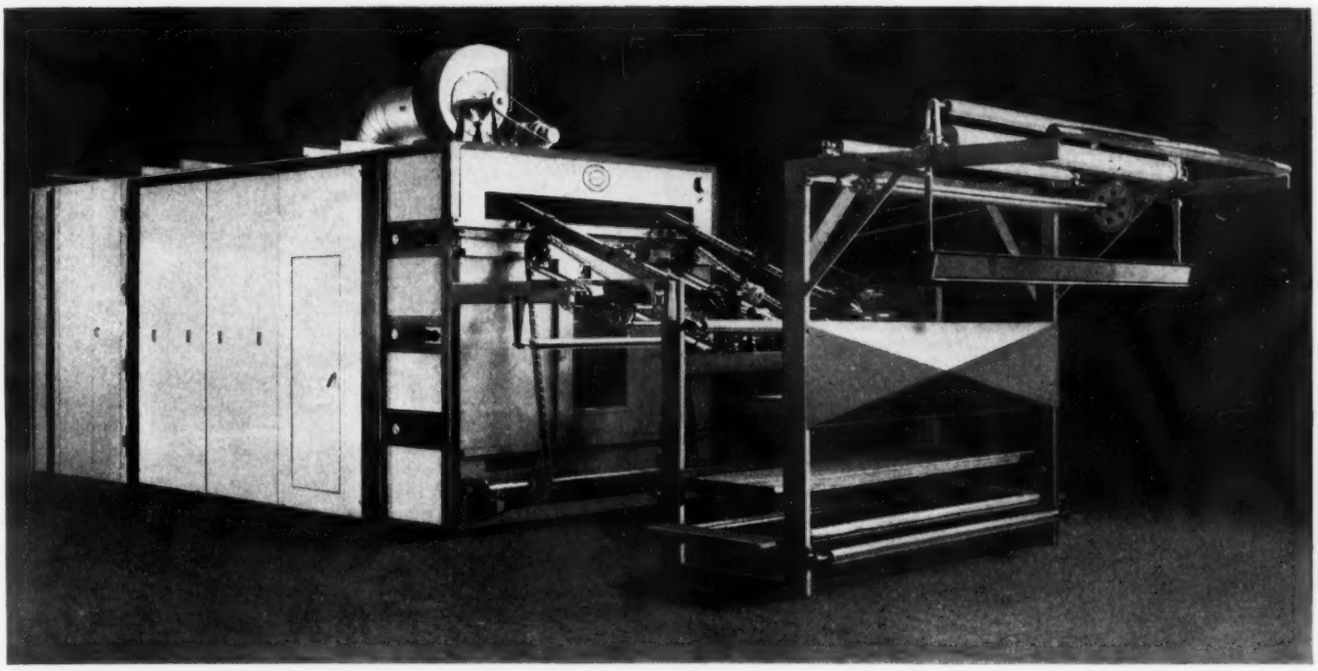
Dan Griffin, service manager of E. H. Jacobs Mfg. Co., Charlotte, N. C., has returned to his duties after serving for a year on active duty in the U. S. army. He is first lieutenant in the officers' reserve corps.

Capt. W. H. Spencer, overseer of weaving of Spartan Mills, Spartanburg, S. C., has been called to active duty and is stationed at Fort Benning, Ga.

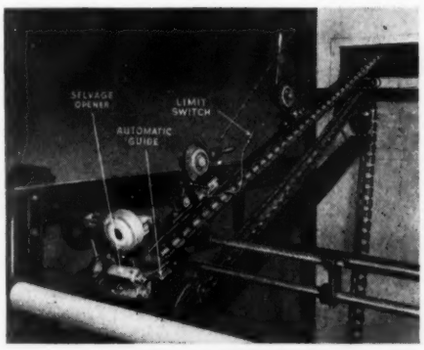
Harry S. March, an official of Nashua Mfg. Co., Nashua, N. H., has been called to duty at Fort Ethan Allen, Vt., as a major in the reserves.

Roger Cutler, for many years in the textile business on his own account in Boston, Mass., is now a lieutenant-commander in the Navy located at the Jacksonville, Fla., air station.

OTTO COX of Pelzer, S. C., who represents the Slip-Not Belting Corp. of Kingsport, Tenn., who will report for military service at Camp Jackson in December.



HOW TO TENTER CLOTH AT HIGH SPEEDS AND LOWER COSTS FOR LABOR, STEAM, AND POWER, AND IN MINIMUM FLOOR SPACE



The cut shown above illustrates Automatic Guider, Patented Hunter Selvedge Opener, and Double Brush mounted on entering rail of Dryer. Illustration shows units mounted on left rail only, but they are furnished on both entering rails. Limit switch to stop Dryer if cloth fails to engage pins is shown by arrow. Limit switch furnished on both entering rails.

New Hunter Uniflow Dries . . .

14-OUNCE WORSTEDS AT 25 YARDS PER MINUTE
16-OUNCE WOOLENS AT 26 YARDS PER MINUTE
IN 12 LINEAL FEET FOR THE DRYING CHAMBER

THE HUNTER UNIFLOW is a new and different cloth tenter. It affords an entirely new conception of air drying cloth with new handle at high speeds. For example: drying time is reduced 1.2 to 4 minutes. Your cloth is exposed to heat and air but a fraction of the time usually required.

The new Uniflow is all metal and requires only one man's operation. It comes complete with automatic guides, selvedge openers, temperature and humidity controls or indicators, recording devices, counters, remote control, tachometer, etc.

Write for production details of installations in outstanding mills.

JAMES HUNTER MACHINE CO. Hunter NORTH ADAMS MASS.

JAMES HUNTER MACHINE COMPANY

FOUNDED 1847 • NORTH ADAMS, MASSACHUSETTS

Western Representative: **E. G. PAULES, 343 Bendix Bldg., Los Angeles, Calif.**

FOR THE PREPARATION OF *Quality* DYES

USE SOLVAY SODIUM NITRITE U. S. P.

SOLVAY SODIUM NITRITE is produced in fine, free-flowing crystals of extremely high quality and purity. It is a product of U.S.P. Grade that is especially suited to the manufacture of azo dyes.

SOLVAY SALES CORPORATION

Alkalies and Chemical Products Manufactured by The Solvay Process Company

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SOLVAY SALES CORPORATION
40 Rector Street • New York, N. Y.

Gentlemen: Kindly send me package data and prices on Solvay Sodium Nitrite.

*Name*_____

*Affiliated with*_____

*Address*_____

*City*_____ *State*_____ BM-941

NEWS ABOUT MEN

Conn., has been elected executive vice-president to succeed **G. T. Loveridge,** who resigned June 30.

Wm. C. Vereen, president of the Moultrie, Ga., Cotton Mills, bank president, prominently engaged in other businesses, known as Moultrie's "first citizen", on Wednesday, Aug. 6, celebrated his 82nd birthday. He is still actively engaged in all of his business interests and spent the day going from one office to another.

George Chapman, who recently resigned after 13 years as buyer of women's hosiery for Montgomery Ward & Co., has established a hosiery mill sales agency under the name of George Chapman Co. in New York. This firm will be exclusive sales agents for Paul Knitting Mills, Pulaski, Va.

Thomas B. McCabe has resigned his connection as a director of American Viscose Corp., New York. Mr. McCabe, who is also president of the Scott Paper Co., is on leave of absence from that office to be deputy director of the Division of Priorities of the OPM in Washington.

Harry W. Gehman, has been appointed vice-president and general manager of Merion Worsted Mills, West Conshohocken, Pa., succeeding the late Fritz Quitner. Mr. Gehman, who has lately been superintendent of the plant, has been connected with the mill for many years beginning as office boy.

Miss E. Helen Dunbar has been appointed style consultant in design and color by Pepperell Mfg. Co., New York, for its sheet, pillowcase and blanket line.

S. L. Hayes has been appointed general chairman of the committee in charge of the forthcoming annual meeting of the A.A.T.C.C. to be held at Pinehurst, N. C., Oct 31 and Nov. 1. Mr. Hayes is with the Ciba Co.

S. L. Hayes

Gilbert Robinson

Gilbert Robinson, merchandise manager of the Ready-to-wear division of Marshall Field & Co., Chicago, for the last five years, will join the Julius Forstmann Corp as a vice-president.

Frank T. Ryan, vice-president of John J. Ryan & Sons, New York, has joined the office of Price Administration as manager of the division handling cotton waste, rayon waste, etc.

A. B. Moss, Jr., for several years manager of Charlotte, N. C., office of Barnes Textile Associates, Inc., Boston, has resigned to accept a position with Bemis Brothers Bag Co., Talladega, Ala. He is succeeded by Nelson N. Hart.

Eugene Szepesi, textile consultant, has been appointed to the staff of the textiles, leather and apparel section of the price division of OPA (formerly OPACS).

W. O. Bozeman, Russell Mfg. Co., Alexander City, Ala.; **Ted Chiles,** Callaway Mills, La Grange, Ga.; **E. G. Jones,** Textile Division, Sears Roebuck & Co., Chicago; **Bunchy Fowler,** Armstrong Cork Co., Lancaster, Pa., all graduates of the Alabama Polytechnic Institute, Auburn, Ala., held a four-sided reunion in Chicago during the last week of August.

Thomas Nelson, dean of the Textile School at North Carolina State College, has been on a six-weeks transcontinental tour during which he visited leading textile centers in the United States and Canada. He returned to the college Sept. 1.

A. D. Elliott, superintendent of Tryon (Ga.) mills, became superintendent of Hampton division of Pacific Mills, Columbia, S. C. on Aug. 11. He is 36 years of age and a graduate of Georgia Tech.

Fred E. Reuning, Bristol, Tenn., has purchased the in-

The Line of Beauty

adds sales appeal to Hosiery

All women want lovely sheer stockings with fine, straight pencil-line seams that are fashion-smart, yet have adequate elasticity and durability. The new high speed Singer 242 was especially designed to produce seams of this kind . . . the line of beauty in hosiery seaming.

The Singer 242 operates with equal efficiency on the most delicate Nylon and silk hosiery as well as on wool, cotton and lisle. It not only produces better seams, which are stitched straight—but is the fastest hosiery seamer on the market today—simple to operate at speeds limited only by the operator's ability to guide the work.

Let us prove the superiority of the Singer 242 by testing it in your own plant on your own work. There is no cost or obligation. Contact the nearest Singer Shop for the Manufacturing Trade today, and arrange for your test.

Actual photograph of Nylon stockings which were seamed on the new high speed Singer 242 hosiery seaming machine.

SINGER

SEWING MACHINE COMPANY

Manufacturing Trade Department

149 Broadway • New York, N. Y.

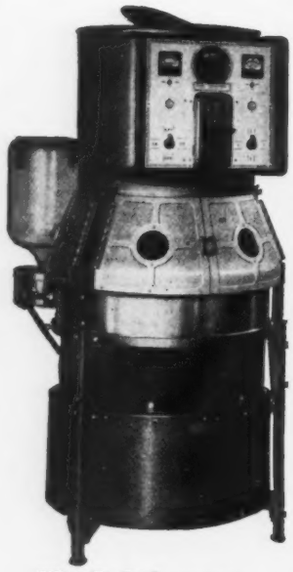
SINGER SEWING MACHINE CO.
149 Broadway, New York, N. Y.
Please send complete information about the Singer 242 to

Name.....

Street..... State.....

City.....

SUN TAN



FDA-R *Fade-ometer*

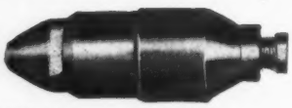
It has been remarked that America is fast becoming a nation of "Sun Worshippers". Certainly it is true that exposing large areas of the epidermis to sunlight has become a favorite national pastime. This tendency and the modern regimen of out-door life have probably increased the problems of the textile industry. Modern textiles are expected to undergo more sunlight exposure without fading than ever before. Under these conditions a standardized reproducible test for lightfastness becomes a virtual necessity in the textile industry.

The Atlas Fade-Ometer provides an accelerated test in your own laboratory—a dependable yardstick to measure the sunfastness of your materials quickly. Why not get the facts on this essential laboratory tool today? Complimentary catalogue will be sent on request.

ATLAS ELECTRIC DEVICES CO.

361 W. Superior St. Chicago, Ill.

ECONOMICAL to INSTALL *and* OPERATE



RIHCO Type B Atomizer

IF the present atomizers in your mill are giving you only half the needed capacity you can get all that is needed by replacing ordinary atomizers with RIHCO. New means of atomization permit smaller compressors and eliminate half the former cost for operation.

Let a RIHCO engineer give you more details about the type B atomizer—how it is different.

R. I. Humidifier & Vent Co.

Humidifiers Since 1912

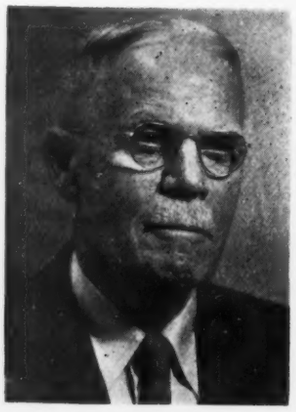
99 CHAUNCY ST., BOSTON, MASS.

Aldrich Machine Works
Greenwood, S. C.

V. L. Sanderson, 1710 Walnut St.
Philadelphia, Pa.

RECORD FOR SERVICE

SEVENTY YEARS continuous service in the textile industry is the amazing record hung up by L. F. Kelley, who in July retired as superintendent of the Poinsett plant of Brandon Corp., Greenville, S. C., after serving 17 yr. in that capacity. Mr. Kelley began his textile career in the Biddeford (Maine) plant of Pepperell Mfg. Co. in 1871 when he was 11 yr. of age, and since that time has held positions in a number of leading companies. He passed his 81st birthday in April and despite his years is active and healthy. The accompanying unretouched photograph, taken several weeks ago, bears witness to his youthful appearance.



L. F. Kelley

terest of the late Col. Carroll Kidd in Bristol Knitting Mills.

Richard J. Steffens, president and general manager, has severed his connection with the Boston Duck Co., Bondsville, Mass., and within 60 days will take over the operation of Talcottville Mills, Talcottville, Ct.

Worth Gamel has gone to Texas Technological College, Lubbock, Tex., to teach yarn manufacture, testing and cotton classing, with rank of assistant professor. He has been, until now, research engineer for U. S. Rubber Co., Hogansville, Ga. **Lloyd Jackson** joins Texas Tech as instructor and mechanician. He will teach textile chemistry and dyeing. He has been with Ciba Co., New York.

W. P. Hamrick, for many years general superintendent of the Hampton division of the Pacific Mills, Columbia, S. C., now technical advisor for the same group of mills, has been re-electetd president of the Columbia Chamber of Commerce.

Theodore C. Werner, for many years with the Associated Merchandising Corp., has been made secretary and treasurer of Hudson Hosiery Sales Inc., New York, and will be in charge of the office.

James Mair, has resigned his position with Dexdale Hosiery Mills, Penderlea, N. C., and has become general manager and superintendent of Trimfit Hosiery Mill, Philadelphia, Pa.

J. G. Chapman is the new general superintendent of Eagle & Phenix Mills, Columbus, Ga. This is in the nature of a promotion for Mr. Chapman, who formerly held the title of plant superintendent.

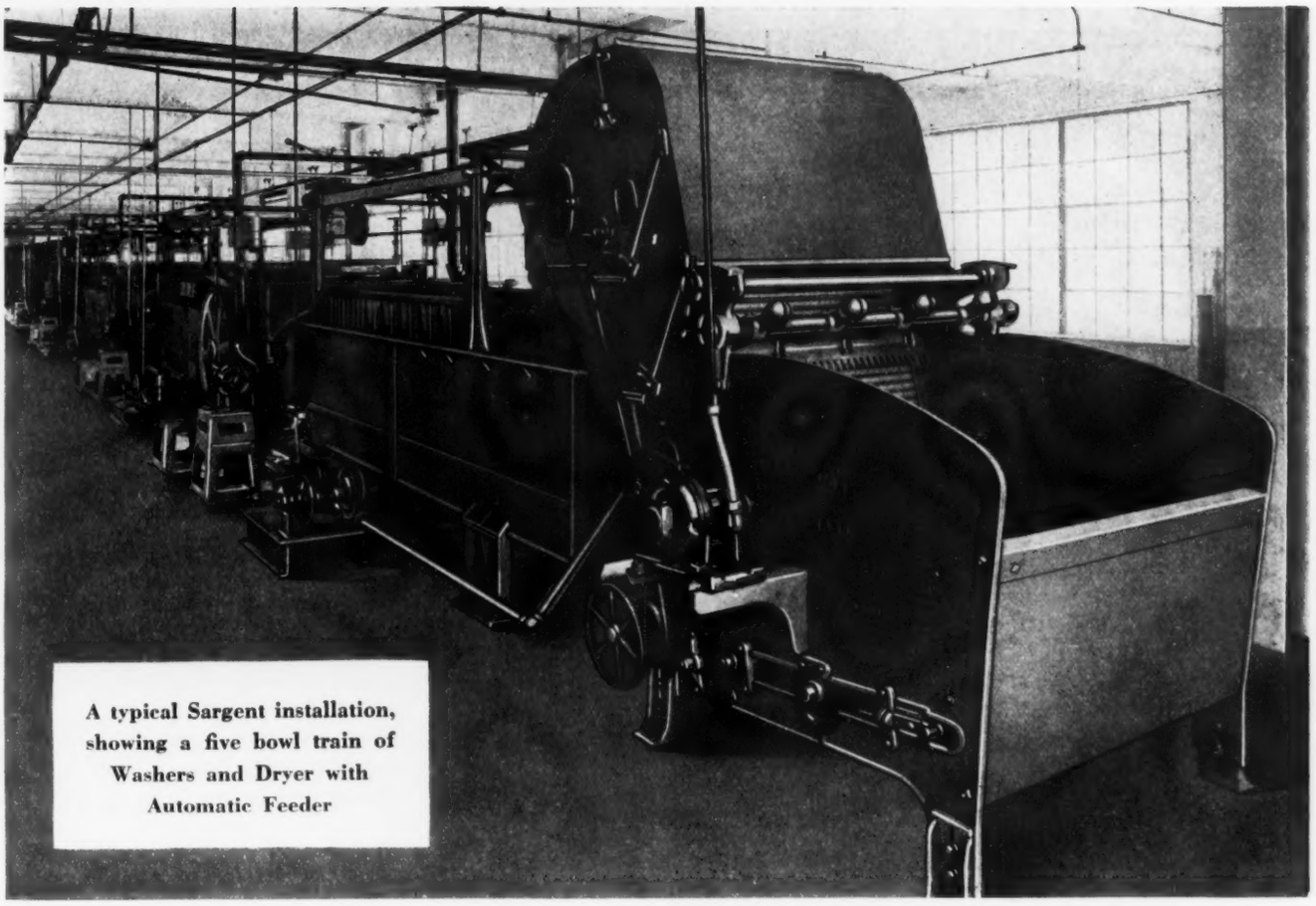
C. L. Wanamaker, factory manager of Mishawaka (Ind.) Rubber & Woolen Mfg. Co., has been named production manager of a small arms plant now being constructed by the Federal Government at Des Moines, Ia., and to be operated by the United States Rubber Co. He will be succeeded as factory manager of the Mishawaka plant by **Charles L. Glaes,** present general superintendent.

Mrs. K. D. Fowler has been elected manager of Cherokee Mills, Acworth, Ga.

Miss Phyllis Gillette, formerly with the sales departments of Cluett, Peabody & Co. and Manhattan Shirt Co, has joined the cravat division of Cheney Brothers, New York. In addition to her work in sales, Miss Gillette will assist **Ralph Deterling** in the general management of Cheney Brothers' cravat division.

George Burnett of Cohn-Hall-Marx Co., New York, was guest of honor at a special luncheon held in the Wool Club, New York, to commemorate the anniversary of his 50 years service in the downtown textile market. Many of Mr. Burnett's colleagues in the days of the old firm of M. C. D. Borden & Sons, with whom he had been associated, were present as well as his present associates. Mr. Burnett had with him the original letter from S. A. Marshall of Bliss, Fabyan & Co. giving him his first job, dated Sept. 1, 1891.

Herbert G. Stone, for the last ten years general superintendent of the Tennessee Eastman Corp.'s plant at Kingsport, Tenn., has been named works manager, a newly created post. **John S. Mc**



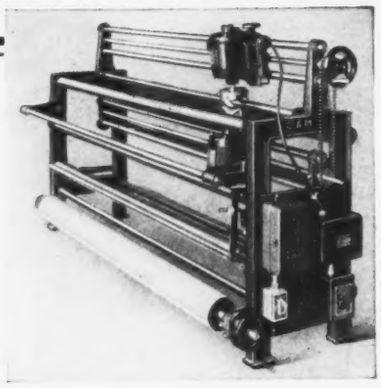
A typical Sargent installation, showing a five bowl train of Washers and Dryer with Automatic Feeder

Ushering in the NEW in "New Era"

THAT is just what the Textile Industry is experiencing when the latest types of SARGENT Preparatory Machinery are installed, because, wherever this is done, there is more *efficiency,* higher *speed,* less *waste* motion, larger *production* and greater *profits* • The Industry absolutely *needs* the *newest* SARGENT Units in order to produce the proper quality and fill the orders *on time* • For more than 88 years SARGENT has received unending recognition as specialists in Wool Scouring, Stock Drying and Picking Equipment, and its numerous fast-working Units are in daily operation in thousands of textile plants throughout America and foreign countries • There are various illustrated Bulletins available which visualize all the Sargent products, and all you have to do is *write for them!*

The famous Sargent Stock Dryer

C. G. SARGENT'S SONS CORPORATION
Graniteville, Massachusetts, U. S. A.



GET

FASTER

SELVAGE

LOOP CUTTING

With this new patented SELVAGE LOOP CUTTER
(with electronic control)

★ An improved machine for cutting open selvage loops so that they may be readily removed by the Type CMR Shear.

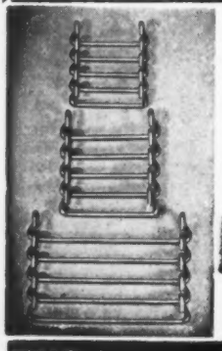
★ Operates on a new principle employing two revolving cutter heads with special knives.

Cutter Heads, sets at a slight angle, are mounted directly on the shafts of vertical ball bearing motors, just above and below the selvage. A hand wheel moves both cutters simultaneously in and out when the goods vary in width. Built in different widths.

Send for New Catalog No. 7 showing Cotton and Rayon Machinery.

Curtis & Marble
MACHINE COMPANY
WORCESTER, MASSACHUSETTS
Branch Offices: NEW YORK · PHILADELPHIA · GREENVILLE, S. C.

OPPORTUNITIES
TO IMPROVE YOUR PRODUCT
AND SAVE YOUR MONEY . . .



NARROWING CHAIN

Accurately made from high grade material—built to last and to hold its shape.

SINKER HEAD SLOT CUTTERS

The ideal tool for cleaning out slots in sinker and divider heads. Made in all gauges. Each one comes in a leather carrying case.

Send for bulletin giving full details on these and other products

THE SINKER WITH THE HARDENED THROAT MACHINED AND THE HARD BUTT

GIVES YOU..

ESS BREAKAGE
ONGER SERVICE
OWER OPERATING COST
ONGER UNIFORMITY OF PRODUCT

THOMAS & SKINNER
STEEL PRODUCTS COMPANY
1119 East 23rd Street Indianapolis, Indiana

NEWS ABOUT MEN

Lellan and **Dr. Fred R. Conklin** have been appointed general superintendents.

William H. Smith, former superintendent of Firth Carpet Co., has been appointed supervisor of the woolen and worsted section of the textile unit research plant at the Marcus Hook, Pa., branch of the American Viscose Corp. **W. W. Ingenthron, Jr.,** has been appointed overseer of worsted combing, drawing and spinning and woolen spinning, and **John T. Drennan** has been named overseer of preparing, blending, picking and carding for woolen and worsted yarns.

Percy F. Hennessey, an official of the rayon division of the Old Hickory, Tenn., plant of E. I. du Pont de Nemours & Co., has been awarded a service pin for his 25 years connection with the company.

Leo Bluhm, president of Avon Converting Co., New York, celebrated his first 50 years in the textile field as well as his 63rd birthday on Aug. 28. He was instrumental in starting the converting firm of Phoenix Mfg. Co., with which the Arnold Print Works was at one time associated.

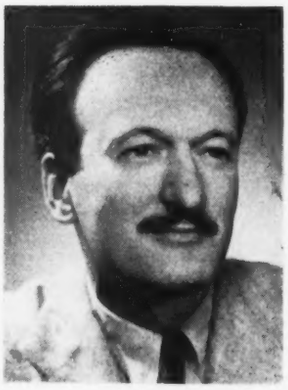
A. Stone is the new secretary and superintendent of Southern Silk Mills, Kernersville, N. C.

B. R. Turner, for the last four years superintendent of industrial education, South Carolina department of education, has accepted the position of director of personnel and training for Graniteville (S. C.) Mfg. Co., which operates five mills in the Savannah Valley of South Carolina.

Howard Graves, with the Gayle unit of Springs Cotton Mills, Chester, S. C., for five years, has become superintendent of Sample Mill of Riverside & Dan River Cotton Mills, Daneville, Va.

H. C. Allen, Jr., of Atlanta, Ga., has resigned as president of Sterling Textile Co., converting firm, and has opened an office at 10 Pryor Street, Atlanta, representing Pacific Mills as Southeastern representative. Mr. Allen is president of the Atlanta Textile Club. He is a graduate of Georgia Tech and was associated with West Point Mfg. Co. before going with Sterling.

J. F. Armstrong, formerly overseer of carding and spinning at Raeford (N. C.) Cotton Mills, has become general manager and superintendent of Deep River Mfg. Co., Randleman, N. C.



Bartow H. Underhill

Bartow H. Underhill will have charge of promotion for Pacific Mills, according to announcement by **F. S. Blanchard,** director of public relations. Mr. Underhill succeeds **Harold S. Birkby,** who has been appointed sales manager in the cotton and rayon divisions. For the last eight years Mr. Underhill has been vice-president of the Sterling Advertising Agency of New York.

W. H. Taylor is now superintendent of Merrimack Mills, Huntsville, Ala. He was lately superintendent of the lower plant of the Pelzer (S. C.) Mills.

R. W. Griffing, for many years on the sales staff of Cheney Bros., New York, is now in charge of the tie silk department of Glendale Linen Co., New York. The firm has its own plant at Bound Brook, N. J., equipped for both screen and block printing.

Mrs. Emily Hubbard has completed 55 years of service in the Pioneer Mill of American Woolen Co., Pittsfield, Maine. Born in England, her family came to this country by way of Canada. When her parents settled in Pittsfield in 1886, she went to work for the Pioneer Mill. For the last 13 years she has been overseer in the sewing department.

R. A. Butler is the new superintendent of Spray (N. C.) Cotton Mill, succeeding **Charles H. Boyd.**

Ralph E. Hawes of New Bedford, Mass., has been appointed chemist with the Apponaug (R. I.) Finishing Co., and **Moses Macia,** also of New Bedford, has joined the staff of the converting firm of Cohn-Hall-Marx Co., New York City. Both are graduates of the New Bedford Textile School.

T. C. Giles, of Graniteville, S. C., has been appointed superintendent of Exposition Cotton Mills, LaFayette, Ga., and has taken active charge. He

Today More Than Ever Before

Good Soap is Good Business

WITH TEXTILE PRODUCTION SIGNALS SET TODAY AT "FULL SPEED AHEAD," efficient scouring and quick, thorough rinsing play a particularly important part in all wet finishing operations.

In your selection of processing agents, efficient performance . . . safety to fiber and fabric . . . justifiably take precedence over every other consideration.

In your wet finishing operations, you will find Procter & Gamble textile soaps well equipped to help provide the processing safeguards, the cleansing efficiency, that assure clean, bright, sweet-smelling, saleable goods. More than ever before Procter & Gamble soaps in your mills will demonstrate that "good soap is good business."

Procter & Gamble

Offices and warehouses in principal cities
General offices — Cincinnati, Ohio

MORE RELIABLE *and* EFFICIENT

NEW MODEL D SOUTHWORTH HUMIDIFIER

Sensitive Control—Better Evaporation

The new Southworth Humidifier is even better than previous models. It is quiet, more efficient, durable. Entirely self-contained, with separate meter on each unit, or can use independent sources of power. Airplane type propeller fan gives better air movement and evaporation. Sensitive control responds to slightest atmospheric changes *at point* of installation. Practically no maintenance cost—no parts to rust or corrode. Complete data will be gladly sent at once—and we will also be pleased to suggest the best arrangement of unit to fit your own requirements—without obligation on your part, of course. Write today.

THE SOUTHWORTH MACHINE CO.
PORTLAND, MAINE, U. S. A.

"Our Beam Blowing Cut from 50% to 2%"

That's the report from one of the many mills that have adopted

STANZOLENE

Not only does this new formula practically eliminate blow-outs on both sulphur and direct color beam dyeing but results in a much more even distribution of clean dyed yarn without smudges. Equally fine results have been shown on packaged goods. . . . Write today for complete details and a working sample to prove our claims to your own satisfaction.

OTHER HIGH GRADE "STANDARD" PRODUCTS
Stanso Palm Oil Curd Soap, Etc.

Standard Soap co. of camden

Charlotte, N. C. CATO M. LITTLETON 426 PARK TERRACE • 205 South 2nd St. Camden, N. J. • Woonsocket, R. I. G. TANGUAY 281 HARRIS AVE.

NEWS ABOUT MEN

succeeds **A. E. Massey** resigned.

Thomas H. Gotts, who retired several years ago as an overseer at the Cocheco Mill in East Rochester, N. H., after a record of 68 years of continuous service, recently celebrated his 83rd birthday. He now resides with a daughter in Portland, Me.

Charles L. Fletcher has been appointed superintendent of the cellulose division of Tennessee Eastman Corp., Kingsport, Tenn., and **Robert C. Burton** has been appointed superintendent of the plastics division.

W. H. Breed, for approximately 40 years overseer of spinning at the Dunson Mills, LaGrange, Ga., has been retired with pay.

R. D. Dillard, formerly overseer of the cloth room at American Spinning Co., a unit of Florence Mills, Greenville, S. C., now holds a similar position with Spartan Mills, Spartanburg, S. C.

Jos. Beaulieu, employed for 63 years at Paton Mfg. Co., Sherbrooke, Que., and in recent years overseer of woolen spinning, has retired at the age of 82.

Ben F. Cummings has been appointed assistant day superintendent of Jordan Mills, Inc., Columbus, Ga; and **Sloan Alexander,** formerly superintendent of the spinning department, has been promoted to succeed Mr. Cummings as assistant night superintendent.

Wade Hearn has been promoted to the position of superintendent of Edna Mills, Reidsville, N. C.

J. E. Dunn has been made night superintendent of weaving at Gonzales (Texas) Cotton Mills.

R. B. Cook has been made assistant superintendent of Unit No. 4 of Erwin Cotton Mills, Durham, N. C. He was formerly connected with the Mooresville (N.C.) Cotton Mills.

Thomas Cousins has been elected manager of Dwight Mfg. Co., Alexandria City, Ala. He succeeds **Allen Little.**

W. L. Landau, of McComb, Miss., has been made superintendent of Valdese (N. C.) Weaving Co.

J. L. Clark has resigned as outside overseer of Gainesville (Ga.) Cotton Mills and has accepted a similar position with American Spinning Co., a division of Florence Mills, Greenville, S. C.

J. O. Corn has accepted position of superintendent of the No. 2 unit of Jackson Mills, High Shoals, N. C. He was some time previously superintendent of some of the units of the Pacific Mills, Columbia, S. C.

C. Weston Taylor, formerly superintendent of Sellers Mfg. Co., Saxapahaw, N. C., has accepted a similar position with Lakedale Mills, Fayetteville, N. C.

Obituary

William C. King, 64, president and managing director of Felters Co., Inc., Boston, Mass., died at the Faulkner Hospital, Boston, Aug. 16. He was born in New York, and for a time was associated with the Faatz, Reynolds Felting Co., Leicestershire, N. Y. In 1910 he helped organize the Boston concern as its secretary.

John C. Haartz, 60, president of Haartz Auto Fabric Co., Watertown, Mass., died at his home in Campton, N. H., early last month He was also founder of the J. C. Haartz Co., New Haven, Conn., and had spent his entire business life in the textile field, specializing lately on automobile fabrics.

Parker Cummings, 55, associated for many years with the New York Office of the Melville Woolen Co., Sykesville, Md., died Aug. 21.

James P. Garland, 52, president of Garland Mfg. Co., Saco, Me., with which he had been connected since 1917 and previously with Naumkeag Steam Cotton Co., Salem, Mass., died at Biddeford, Me., on Aug. 28.

James A. Long, Sr., 56, president of Roxboro (N. C.) Cotton Mills since 1916 and of the Peoples Bank of Roxboro, and a former president of North Carolina Cotton Manufacturers Association, died suddenly in Roxboro, Sept. 3.

E. Kent Hubbard, 72, president of the Connecticut Manufacturers' Association since 1918, former treasurer of Russell Mfg. Co., Middletown, Ct., and a director in numerous business enterprises, died at Middletown on Aug. 7. He was born in Chicago, and at one time was president of the

One of Michigan Alkali's full-revolving electric shovels loading limestone at Alpena, Michigan. The quarry is worked 8½ months a year. An average of 10,000 tons is taken out per two-shift day.

Sinking a dynamite charge in the Michigan Alkali quarry, Alpena, Michigan.

BACK when the earth was hundreds of thousands of years younger, strange animals roamed its face. Still others lived in the waters that covered much of what is now dry land. They're gone now, but their skeletons are still here, changed by Nature's chemistry into valuable limestone!

Michigan Alkali Company quarries a 600-acre deposit of high-grade limestone at Alpena, in Northern Michigan. Blasted out of its solid formations, the limestone is scooped into electric cars . . . hauled away to be crushed, screened and recrushed . . . loaded into Michigan Alkali ships . . . then sailed 200 miles down the lakes to Wyandotte where it is combined with brine and coal to produce alkalies.

With 200,000 tons of limestone coming from each acre of this quarry, and with 1,750,000 tons being taken out annually, Michigan Alkali is able to maintain its high output of alkalies; able to supply you with the chemical products you want—when you want them!

MICHIGAN ALKALI COMPANY

FORD BUILDING, DETROIT, MICHIGAN

NEW YORK • CHICAGO • CINCINNATI • ST. LOUIS • WYANDOTTE

DISTRIBUTORS IN ALL PRINCIPAL CITIES • *MANUFACTURERS:* SODA ASH • CAUSTIC SODA
BICARBONATE OF SODA • CALCIUM CHLORIDE • CHLORINE • CALCIUM CARBONATE • DRY ICE

CLOTH EXPANDERS

WITH ONE, TWO, THREE, OF FIVE BARS
FOR ALL TYPES OF FABRICS

SCUTCHERS

FOR OPENING CLOTH IN BLEACHERIES,
PRINTWORKS, DYEHOUSES, AND
WOOLEN AND WORSTED MILLS

IMPORTED LAPPINGS

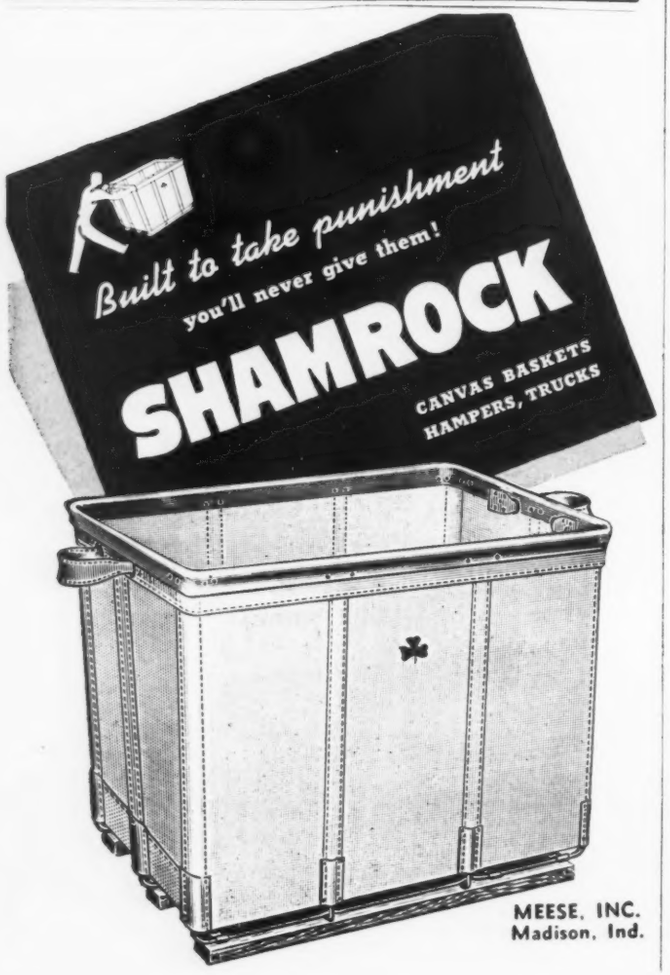
AND

DOMESTIC MACKINTOSH BLANKETS

3-Bar Leyland Mycock Regulating Rubber-Covered Expander for Wide Goods

Thomas Leyland Machinery Co., Inc.

Readville, Mass.



MEESE, INC.
Madison, Ind.

NEWS OF THE MONTH

Maxim Silencer Co., Hartford, Ct.

Hansel L. Dulin, 75, for many years president of the Springfield (Tenn.) Woolen Mills, retired from active mill work, died Aug. 8.

C. H. G. Linde, 58, president of Cotton Sales Agency, Charlotte, N. C., died July 22, and his ashes were interred at his old home, Fort Gibson, Miss.

Henri Burhenne, 54, an executive of Albany (N. Y.) Woolen Mills, died Aug. 20.

Russell Lewis Shelton, 39, secretary and a director of Claussner Hosiery Co., Paducah, Ky., died Aug. 18.

John W. Massey, 66, textile designer for Textile Engravings, Inc., Bound Brook, N. J., died last month.

E. C. Bennington, 65, vice-president of the Eastern Sales Division of Chase Bag Co., New York, died Aug. 3.

William Greene Holland, 60, associated for more than 25 years with Peace Dale Mill, and later with Lymansville Mills and Guerin Mills, died recently. When he retired two years ago he was sales agent for Guerin Mills in New York.

Samuel J. Taylor, 67, formerly a member of the firm of Taylor Bros., Philadelphia, until his retirement ten years ago, died at Ocean City, N. J., Aug. 9.

Homer A. Kilburn, for many years with the old firm of Lawrence & Co., New York, and later with Pacific Mills until his retirement ten years ago, died at South Orange, N. J., recently.

Louis G. Barth, 61, for many years a partner of Barth & Guttman, New York, died at his home in Beverly Hills, Calif., Aug. 1.

Herbert E. Langford, 75, formerly a partner in King, Beals & Co., and later a representative for Brightwood Mfg. Co. of England, died in North Plainfield, N. J., Aug. 2.

Kellogg E. Boynton, 55, an executive of the E. Frank Lewis Textile Co., Andover, Mass., died suddenly at his home in that place on July 31.

Willis G. Austin, 68, who had been assistant superintendent of Draper Corp., Hopedale, Mass., for 12 years during a 48-year connection with that manufacturer, died at his home in Hopedale on Aug. 7.

William Matthew Poz, 69, editor since 1931 of "Silk & Rayon," a weekly trade journal published at 1 Broadway, New York, died at Emerson, N. J., Aug. 4.

Wallace C. Smith, 55, business manager of Coker College, Hartsville, S. C., and formerly connected with Highland Park Mills, Charlotte, N. C., and Camperdown Mills, Greenville, S. C., died at Hartsville on Aug. 17.

H. S. Sturges, traffic manager of Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J., died recently.

H. Roy Berry, 71, secretary and treasurer of Rome (Ga.) Hosiery Mills and Berryton (Ga.) Mills, died Aug. 19.

James Alexander Hawley, 47, former manager of Dunn (N. C.) Hosiery Mills, died at his home at Coats, N. C., Aug. 14.

Harold C. Hansen, 54, former textile editor of the late *Boston Evening Transcript*, died at Norwood, Mass., on July 29. He was advertising manager of "Industry," the monthly publication of the Associated Industries of Massachusetts.

Dennis Edward Barrett, 75, secretary of Colonial Ribbon Mills, Inc., Allentown, Pa., died Aug. 1.

Fred B. Crowell, 68, sales representative for E. H. Best & Co., textile specialists of Boston, died recently at Greenville, S. C., where he had made his home for a number of years.

H. G. McGinn, 45, of Schoolfield, Va., a departmental superintendent and member of the board of directors of Riverside & Dan River Cotton Mills, died July 31. Mr. McGinn was recipient of the mill village's number one citizen award last year.

Frank Zeidlhack, 84, retired superintendent of National Knitting Works, died July 28 in a Milwaukee hospital.

Albert Decator Steadman, 74, former superintendent of Jackson Mills, Welford, S. C. and of Lockhart (S. C.) Mills, died on Aug. 8. He had engaged in dairying since retirement from the textile industry.

O. C. Copeland, 61, superintendent of carding at the Clinchfield Mfg. Co., Marion, N. C., died recently.

J. L. Dudley, 53, overseer of spinning at W. A. Handley Mfg. Co., Roanoke, Ala., for many years, died recently.

G. Marion Duval, Sr., 60, superintendent of Arista Mills, Winston-Salem, N. C., and secretary and treasurer of the Social Circle (Ga.) Cotton Mills for many years, was killed in an automobile accident recently.

1866 1941
75th Anniversary
STEIN-HALL

We've Been Through Two Wars!

Experience is a wise teacher. ★ Our 75 years of experience have taught us how best to serve our customers through periods of economic confusion. ★ Through the Spanish-American and the World War our strength was increased by consistent adherence to a policy of fair service to all customers. ★ Today we face the present and the future with firm confidence because our faith in that policy is unshaken. Our customers in turn have faith in our ability to supply highest quality textile starches . . corn, potato, wheat . . backed by service which proves our sincere and constant effort to protect their interests.

★ ★ SH ★ ★

STEIN, HALL & COMPANY, Inc.
285 Madison Avenue • New York
1011 Johnston Bldg. • Charlotte, N. C.
LABORATORIES AT . . NEW YORK • CHICAGO • CHARLOTTE • PROVIDENCE • LONG ISLAND CITY N. Y.

★★ A TEXTILE STARCH FOR EVERY TEXTILE PURPOSE ★★

SCOURING WETTING
PINE-SOLVENT
BLEACHING DYEING

CUT TIME AND COST– IMPROVE RESULTS IN ALL WET PROCESSING WITH BURK-SCHIER PINE SOLVENT XX

Burk-Schier Pine Solvent XX Reduces Surface and Interfacial Tensions . . . Wets, Penetrates, Suspends, Disperses . . . Aids Detergents and Dyes. A Little Does a Lot and Does It Well.

COTTON: In the kier, Pine Solvent XX brings the liquor in contact with every fiber, leaves uniform bottoms that dye and finish more evenly. Boiling time is cut. Fibers are softer, fuller, more resistant to age-discoloration.

WOOL: Pine Solvent XX is valuable in raw-wool scouring . . . irreplaceable in fulling. From the raw stock it produces clean, soft, really white wool in prime condition for storage or further processing. In the fulling mill, it cuts time as much as 30% . . . costs no more . . . helps you meet contract delivery dates on time.

RAYON: In boiling off, Pine Solvent XX rapidly emulsifies gelatinous materials . . . is safe for the most delicate fabrics. Used in dyeing, it makes the fabrics wet out and sink quickly.

DYEING: Pine Solvent XX makes dye liquor penetrate the hardest fibers and heaviest seams. It gives an even, level deposit of dyestuff of uniform depth throughout every fiber. Loose dyestuff and impurities are suspended for washing out completely.

PRINTING: In printing paste, Pine Solvent XX wets pigments thoroughly, disperses them evenly, and holds them in suspension without agglomeration and until the design is on the fabric. Designs are sharp, colors bright and clear, no specks are formed.

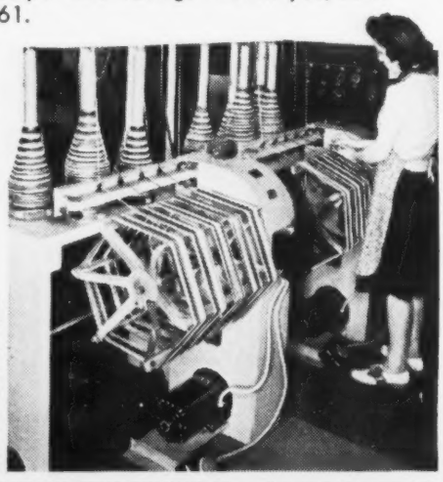
BURKART-SCHIER CHEMICAL CO.
CHATTANOOGA, TENNESSEE
MANUFACTURING CHEMISTS FOR THE TEXTILE INDUSTRY

SKEIN REELING
with unique efficiency
for ALL Kinds and Counts of Yarn

By this *new* twin-unit, single-operator method of skein reeling, FIDELITY machines quickly pay for themselves by savings that include time and floor space as well as cost. Result:—greater output per shift at a handsome saving—also less operator fatigue.

If increased output and savings interest you, send for Bulletin 361.

Single-end type for heavier yarns and shorter skeins; double-end type for yarns of finer count in longer skeins.



FIDELITY MACHINE CO.
3908-18 FRANKFORD AVE., PHILADELPHIA

TEXTILE MILL NEWS

Cotton Mill News

Amazon Cotton Mills, Thomasville, N. C., have awarded contract to Miller Construction Co., Thomasville, for one-story addition for office service and general operations. Leon McMinn, Greensboro, N. C., is architect.

Appleton Co., Anderson, S. C., has begun two additions, for which general contract recently was let to Daniel Construction Co., Anderson, comprising a two-story structure, 60 x 130 ft., and one-story adjoining building, 60 x 150 ft., for expansion in cloth room and storage division, respectively. J. E. Sirrine & Co., Greenville, S. C., are engineers. Cost reported close to $100,000, with equipment.

Atlantic Cotton Mills, Macon, Ga., plan repairs to the factory building at a cost of $2,592, and for remodeling and repairing the homes of the village at a cost of $3,626.

Berkshire Fine Spinning Associates have bought the former No. 4 Farr Alpaca Co. cotton mill in Holyoke, Mass. They took title Aug. 20. Sale was made for approximately $300,000. Berkshire now employes 500 hands in Holyoke, on a two-shift basis, on cotton yarn. Robert A. Hendry is the manager.

Bibb Mfg. Co., Columbus, has completed a new gymnasium and community center. The building was dedicated by Donald Comer, chairman of the board, to the memory of his uncle, the late E. T. Comer, a former Bibb Mfg. Co. president and chairman of the board.

Boston (Mass.) **Duck Co.** has disposed of its mill property at Bondsville, Mass., including land, buildings and water rights, to Bondsville Realty Co., Inc., Fall River, Mass., for a reported consideration of $60,000.

Brookford (N. C.) **Mills** have constructed an addition in the form of a second story to the main mill structure, which provides the company with additional space of 40 x 80 ft.

William H. Burns Co. and **C. Lever Co.** have bought the former plant of John Hamilton & Sons, Philadelphia, Pa., for use in the manufacture, dyeing and finishing of yarns.

California Cotton Mills Co. has sold its Sunset Textile Mills, Selma, Ala., to Otto F. Fell of Atlanta, Ga. This included the plant and mill village properties adjoining. The property covers about 10 acres. The price paid was $60,000. The company is constructing a $5,000 addition to its plant at Oakland, Calif.

Canadian Cottons Ltd., Montreal, Que., is installing seven Whitin long-draft spinning frames, Saco-Lowell lap winders and drawing frames, and long-draft slubbers in its York Mill at St. John, N. B. The company will also install Saco-Lowell lap winders and drawing frames in its mill at Marysville, N. B.

Dalnoca Mills, Dallas, N. C., newly organized mill, is housed in the old Monarch Mill building, purchased by Jerry W. Walker, who has remodeled the building, installed modern cotton mill machinery, and has leased the plant. The new mill began operations Aug. 19.

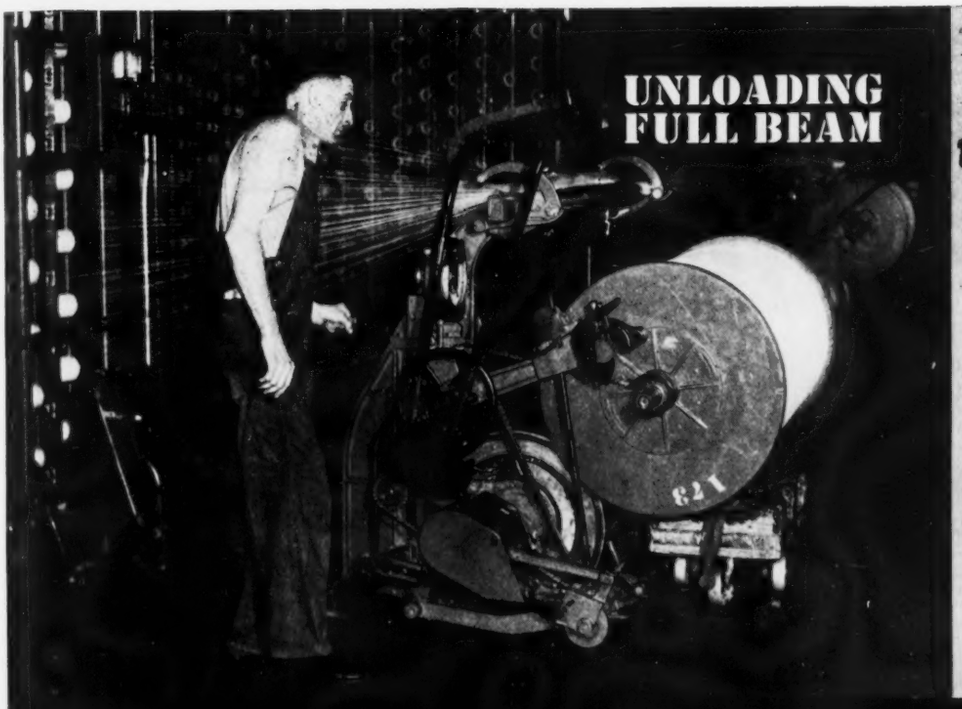
Dominion Textile Co. Ltd., with head office at Montreal, Que., has placed in full operation its new $100,000 machine shop, adjacent to the Merchants Branch in that city.

Doon Twines, Ltd., Kitchener, Ont., have begun one-story addition, 125 x 135 ft., to be equipped for increased capacity. Cost estimated about $115,000, with machinery.

Dover Mill, Shelby, N. C., plans an addition to add 22,000 ft. of floor space and involve an expenditure of about $50,000. It will be three stories and basement, and will permit installation of 50 and 60 looms. Addition should be completed by the first of February.

Dwight Mfg. Co., Alabama City, Ala., is awarding miscellaneous contracts for work in connection with large mill addition (previously reported) including exterior and interior fire-protection system to Georgia Sprinkler Co., Atlanta, Ga.; freight elevators to General Elevator Co., Atlanta. Awards for other required equipment will be made soon. New mill unit will be equipped with about 20,000 spindles, in addition to preparatory and weaving machinery. Entire project will represent ultimate cost reported at $3,000,000. Daniel Construction Co., Anderson, S. C., has the general erection contract. J. E. Sirrine & Co., Greenville, S. C., are engineers.

Eagle & Phenix Mills, Columbus, Ga., have let a contract for construction of a four-story addition. J. E. Sir-



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rine & Co., Greenville, S. C., is in charge.

Gainesville (Ga.) **Cotton Mills** are changing three intermediate frames to Saco-Lowell long-draft slubbers.

Groves Thread Co., East Gastonia, N. C., has installed two new cotton blending hoppers and one beater section in picker room No. 2.

High Falls, N. C.—Walter H. Currie, president, Currie Hosiery Mills, Inc., Carthage, N. C., and John Currie, have acquired a cotton mill at High Falls, and plan early operation. New equipment will be installed.

Jefferson Mills, No. 2 unit, Crawford, Ga., are changing over 19 frames to Saco-Lowell long-draft.

Kendall Mills, Walpole, Mass., will enlarge its power facilities and has awarded contract to W. W. Wyman, Inc., Shelburne Falls, for boiler plant addition. Construction will be of brick, steel and concrete.

Lindale (Ga.) **Mills** have awarded general contract to DuPre Brothers, Rome, Ga., for one-story addition. Cost estimated about $25,000, with equipment.

Mallinson Braided Cord Mill, Athens, Ga., has been acquired by West Point (Ga.) Mfg. Co.

McComb (Miss.) **Cotton Mills** has been sold to R. D. Sanders, Jackson, Miss., by the Crescent Corp. of Mississippi. It is expected that additional machinery will be installed and approximately 600 operatives will be employed.

Merrimack Mfg. Co. reports net profit for first half of 1941 of $195,270, compared with $42,645 for similar period of 1940.

Mills Mill, Greenville, S. C., has completed a modernization program which cost about $369,000, and which was carried out under a certificate of necessity for defense work.

National Thread Co., a new company, has commenced operations in Sherbrooke, Que., having taken over the firm of Ideal Threads Ltd., Montreal, Que. The company which has installed much new equipment, will employ 60 hands and produce cotton and mercerised cotton threads.

New England Fabric Co., Inc., Middletown, Conn., has purchased a one-story building on South Main Street, now occupied by the Lynch Brothers Paint shop, and will make extensive alterations. Edward Schilke is president of the company, which manufactures ladder tape for venetian blinds.

Orr Cotton Mills, Anderson, S. C., are installing a number of new X2 Model Draper looms.

Pacific Cotton Mills, Inc., is erecting an addition at 233 North Lemon street, Orange, Calif. The new structure, 27x35 feet, will cost $2,000.

Pacific Mills reports net profit for first half of 1941 of $1,044,950 compared with net loss of $70,177 for similar period in 1940. Net sales, at $32,649,201, were up 46%.

Pacolet Mfg. Co. reports net profit for fiscal year ended March 31, 1940 of $479,506, compared with $605,690 in preceding year.

Pepperell Mfg. Co., reports net profit for fiscal year ended June 30, 1941 of $1,868,543 comparedr with $1,121,505 for previous year. Sales, at $38,639,270, were up 32%.

Piedmont Cotton Mills, Egan, Ga., have awarded general contract to Flagler Co., Atlanta, Ga., for one-story addition, including alterations and improvements in present mill. Cost reported about $25,000.

Ranlo (N. C.) **Mfg. Co.,** Ranlo unit, has installed additional spindles.

A. A. Shuford Mill Co., Hickory, N. C., has completed the erection of a $65,000 addition. It is also installing new motors at cost of $7,900.

A. M. Smyre Mfg Co., Ranlo, N. C., is installing four new Saco-Lowell combers, replacing 12 old machines.

Stanley (N. C.) **Mills** will begin at once a 100 x 200 ft. two-story addition. J. E. Sirrine & Co., Greenville, S. C., are the engineers.

Tallassee (Ala.) **Mills** plan one-story addition to main mill. Cost reported over $45,000, with equipment. Robert & Co., Atlanta, Ga., are architects and engineers.

Trenton Cotton Mills, Gastonia, N. C., have installed 18 old-style combers, with six new Saco-Lowell combers.

Trion (Ga.) **Co.** is constructing two additions at a cost of more than $35,000 including new machinery. The company is also modernizing the main mill structure, in which additional machinery is being installed.

Victor-Monaghan Co.'s Victor unit, Greer, S. C., has consolidated the weave rooms into two rooms, and 458 Model XD looms have been installed.

Wabasso Cotton Co. Ltd., is erecting a one-story 64 x 32 ft., addition at Shawinigan

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Falls, Que., at a cost of $9,000.

Willingham Cotton Mills, Macon, Ga., has begun work on repairing and repainting 60 dwellings in the village.

Wool Mill News

Albany (N. Y.) **Felt Mills Co.** plans a five-story, 100 x 100 ft. building adjoining its plant at Menands, to store 2,000,000 lb. of wool.

Alderman Top Mfg. Co. has bought the No. 3 mill of Farr Alpaca Co., Holyoke, Mass., for $50,000. Property includes a five-story mill with steam plant and coal pit, as well as the machinery and equipment.

Ayer Mills, American Woolen Co., Lawrence, Mass., have begun erection of one-story addition, 32 x 140 ft., to be used primarily for a dye house, with section to be reserved for laboratory. Cost over $50,000, including equipment.

Bigelow - Sanford Carpet Co., Inc., reports for the first half of 1941, net profit of $1,084,570, compared with net profit of $749,033, for the 1940 period.

General Electric Co., Bridgeport, Conn., has increased space for making the G. E. automatic electric blanket by 500%.

National Automotive Fibres, Inc., Oakland, Calif., plans one-story addition, 320 x 600 ft. Cost estimated over $250,000, with equipment. W. H. Ellison, Pacific Building, San Francisco, Calif., is engineer.

Peerless Woolen Mills, Rossville, Ga., plans construction of a new boiler plant to cost between $125,000 and $150,000.

Renfrew Woolen Mills, Renfrew, Ontario, has completed first step in its extensive modernization program, at cost of $150,000. New machinery installed includes a 48 in. Curtis & Marble Fearnaught mixing picker, two sets of 60 x 60 Whitin cards, six Whitin ring spinning frames, eight Crompton & Knowles W3 convertible automatic looms, one Jas. Hunter Machine Co. piece goods dryer, one Schweiter automatic winder, one high speed warper, and two fulling mills and one washer made by the Rodney Hunt Machine Co.

Scottish Woolen Co., Inc., Providence, R. I., has been organized by Louis Rubin, 78 West 180th St., New York, N. Y., and Aaron W. Hoenig, Providence, to operate a mill in that vicinity.

M. T. Stevens & Sons Co., Rockville, Conn., owners of Hockanum Mills, suffered a loss of $75,000 in a recent storm. The roof was blown off. Walls on the fifth floor were also blown in. Machinery stored in the ell was damaged and stock spoiled. The company is erecting a one-story brick mill addition, 45 x 150 ft. Contract was awarded to R. E. Runels Construction Co.

Stillwater Worsted Mills, Greenville, R. I., has awarded general contract to A. F. Smiley Construction Co., Pawtucket, for a one-story plant addition at Nasonville.

Tilton Worsted Mills, Inc., Laconia, N. H., has signed a five-year lease for the Pitman Mill of that city, to be operated as a branch by Worsted & Gabardine Mfg. Co.; John W. Crawford, president, and Ruel W. Haywood, treasurer.

Ward Woolen Co., Inc., Worcester, Mass., has been incorporated with capital of 5,000 shares of stock, no par value, to operate mill on woolen and cotton specialties. James T. Putnam is president and treasurer.

Worumbo Mfg. Co., Lisbon Falls, Me., reports net profit for first six months of 1941 of $33,962.

Rayon & Silk Mill News

American Viscose Corp. reports net profit for first half of 1941 of $3,375,201 compared with $4,067,420 for first half of 1940. Sales were $38,130,128 against $28,633,648.

Burlington (N. C.) **Mills Corp.** has recently purchased for $27,500 part of the property of Oneida Mills Co. at Graham, N. C., idle for several years. Burlington has completed its large new addition at Lexington and machinery is being installed. A part of the new machinery has already been put into production. The company's Mooresville, N. C., unit is constructing an addition, which, with equipment, will cost about $40,000. Burlington reports sales for 12 months ended July 31, 1941 at $60,986,000 compared with $45,996,000 for the 12 months preceding. Burlington's Bristol (Tenn.) plant is building an addition to house 50 looms.

Celanese Corp. of America reports second quarter sales at $16,598,234, a new record. First half of 1941 net earnings at $3,149,921 compares with $3,426,480 a year previous.

Dominion Textile Co., Ltd., has placed in production its new 5,000-spindle, rayon-staple spinning plant in

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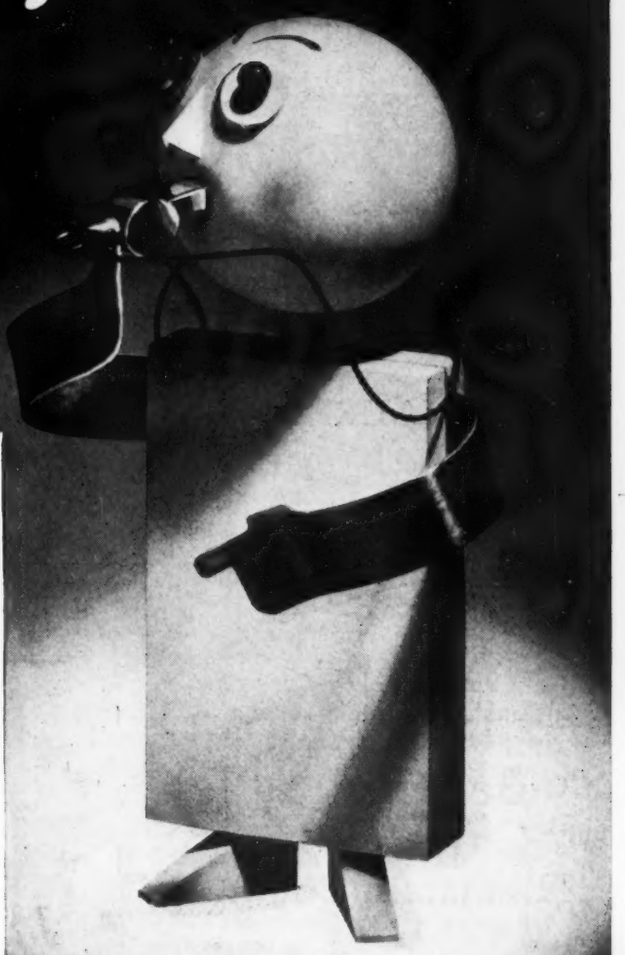

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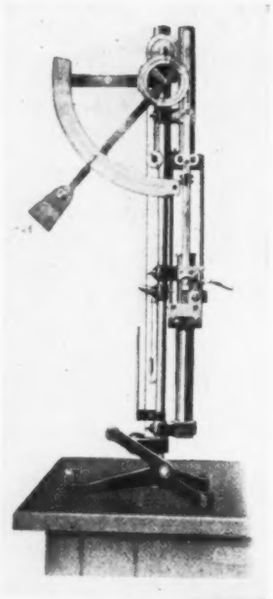

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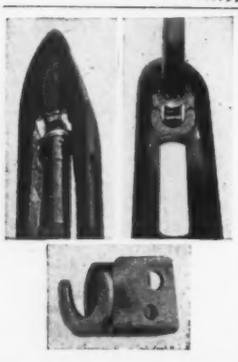

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MILLBURY, MASSACHUSETTS

Sherbrooke, Que. Cards were supplied by Textile Machinery Makers Ltd., of England. Two lines of Whitin draw-frames are producing 16 deliveries each, one breaker and one finishing.

Dover Mill Co., Shelby, N. C., has begun erection of three-story addition, for which general contract was awarded to Daniel Constructing Co., Anderson, S. C. About 50 new looms and auxiliary equipment will be installed. Cost reported over $100,000, with machinery.

John Dunlop Sons, Inc., silk mill in Blakely, Pa., idle for the last six years, has been sold to the Schneider Silk Mills, New York, for $20,000. Extensive improvements are under way and it will be reopened for weaving rayon late in September with 300 workers.

R. K. Laros Silk Co. will sell one of its plants in Bethlehem, Pa., to Bethlehem Steel Co.

H. W. Kimble Co. plans to resume operations at its silk throwing mill in Hawley, Pa., with 65 workers. Plant has been idle for last 10 years.

Stanley (N. C.) **Mills Inc.,** have begun construction of a 100 x 200 ft., two-story mill building. The present mill building will be re-conditioned. Formerly the property of Katterman Mitchell Co., this plant was recently purchased by new interests.

Sauquoit Silk Co., Inc., Scranton, Pa., recently acquired interest of Van Straaten & Havey, Inc., Philadelphia, Pa., now operating under Sauquoit company name, has plans for new one-story mill in South Scranton area, for handling Nylon yarn. Cost estimated close to $100,000, including processing and other machinery.

Stehli Silk Co., Lancaster, Pa., has lately remodeled its air-conditioning system, after 24 years of continuous service, according to Edward T. Murphy, vice-president in charge of marketing, Carrier Corp., Syracuse, N. Y. The original equipment, installed in a silk weave shed at the Stehli plant by Dr. Willis H. Carrier to control temperature and humidity conditions is still in good operating condition. The remodeling called for installation of 37 new Carrier outlets.

Tennessee-Eastman Corp., Kingsport, Tenn., has approved plans for one and multi-story addition, reported to cost over $150,000, with equipment. Work will begin at once. Contract for steel framing has been let to Bristol (Va.) Steel & Iron Co.

Knitting Mill News

Amos Hosiery Mills, High Point, N. C., manufacturers of seamless hosiery, has awarded contract to R. K. Stewart & Son, for construction of a three-story and basement addition, 65 x 85 ft. replacing the old part of the plant, now being torn down. There will be no increase in output for the present mill.

Belding-Heminway Co., Inc., reports net profit of $303,552 for first half of 1941 compared with $224,798 for similar half of 1940.

Belmont (N. H.) **Hosiery Co.** has installed two new full-fashioned knitting machines for work on Nylon. Karl Norvak was in charge of assembly and testing.

Byr-Kay Co., Delavan, Wis., has been organized by D. F. Byrnes, formerly vice-president and production manager of the old Bradley Knitting Co., who will be president. C. J. Beamsley formerly of the old National Knitting Co., will be vice president in charge of sales. A. J. Vaughan, credit manager for Bradley will be secretary-treasurer. Company will manufacture and job a complete line of knitted outerwear.

Classon Knitting Mills, Ltd., Sherbrooke, Que., has installed three new Metropolitan outside elastic machines, also fluorescent lighting equipment.

Elliott Hosiery Mills, Catawba, N. C., has installed a new 40-in. Zephyr extractor purchased from Morris Speizman, Charlotte, N. C.

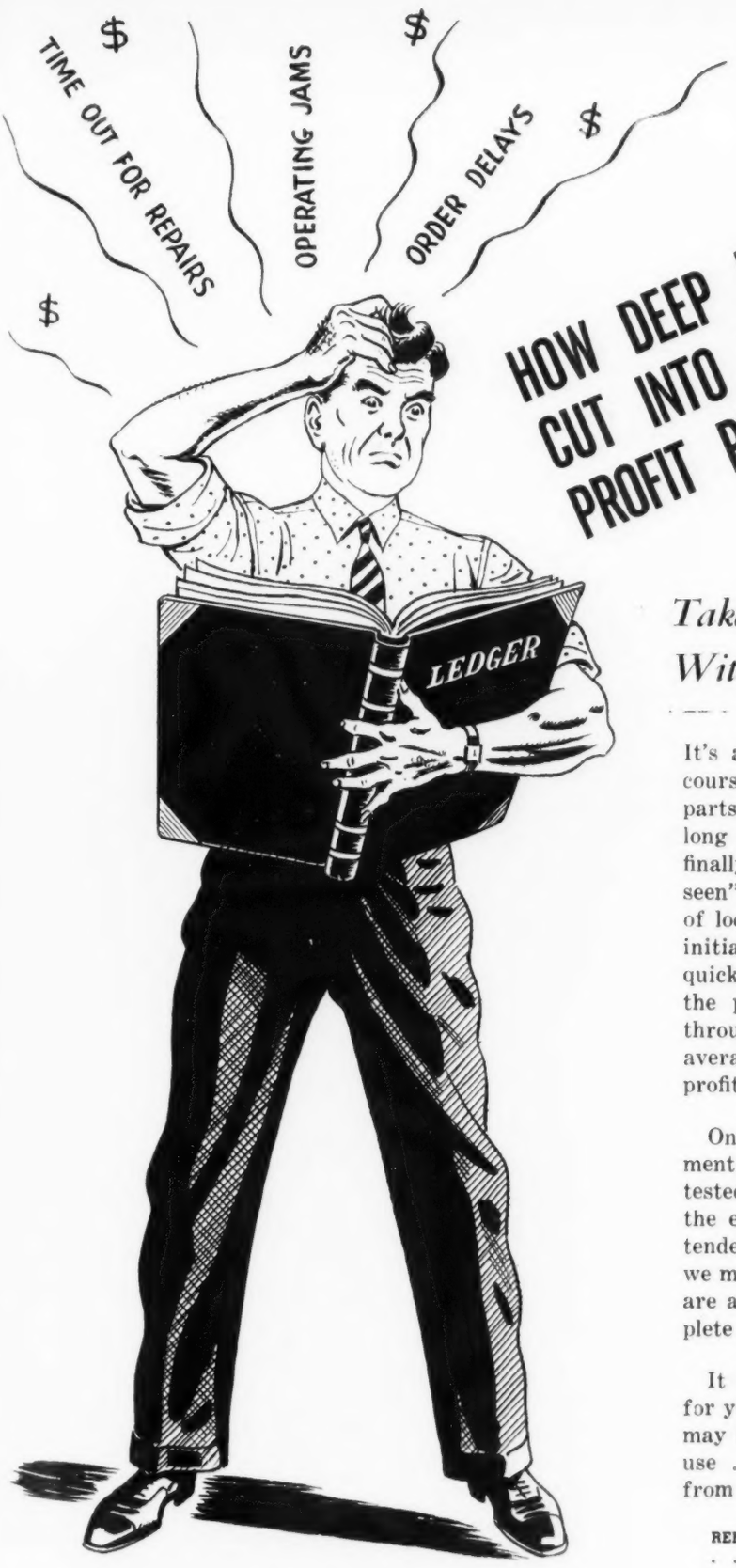
Fairy Silk Mills, Shillington, Pa., (E. S. Jenckes, receiver) have plans for addition to boiler house, with new boiler unit and auxiliary equipment. Cost estimated close to $45,000. A 24 string stainless steel dye tub will also be installed. An offer to buy the plant has been made.

G. & H. Hosiery Mill, Hickory, N. C., has erected a combination warehouse and boiler house addition.

Gotham Silk Hosiery Co. reports net profit for first half of 1941 of $52,208 against net loss of $156,975 for similar period in 1940.

Hafer Hosiery Mills, Hickory, N. C., have enlarged their dye house capacity by the installation of an additional new Zephyr 48 in. extractor.

Holyoke (Mass.) **Silk Hosiery Co's** machinery originally valued at $300,000, has been sold to Ernest A. Feustel, Inc., Hasbrouck Heights, N. J. The equipment includes 30 large



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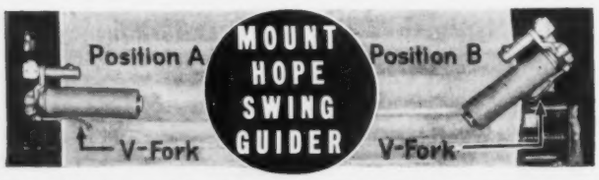

THE PRINCIPLE. When the selvage works toward the apex of the V fork (see position A), the increased leverage swings the nip rolls toward the horizontal, thus releasing the pull on the selvage. When the selvage works away from the apex of the V fork (see position B), the decreased leverage permits the nip rolls to swing back to a more acute angle thus increasing the pull on the selvage.

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sectional knitting machines, together with the complementary machines. Some of the machines will be shipped to southern mills and the balance to South America.

Hollar Hosiery Mill, Hickory, N. C., plans expanding its space. The mill has been occupying the upper floor of the company's building and the lower floor has been leased to another concern. This concern has moved out, doubling Hollar's floor space, and the company will now install additional machinery.

Lebanon Knitting Mill, Pawtucket, R. I., has installed a battery of Kaylooms, the combination knitting and weaving machine developed and built by Robert Reiner, Inc., Weehawken, N. J.

Martinat Hosiery Mill, Valdese, N. C., has just installed a new 32 in. Zephyr extractor with V-belt motor drive, purchased from Morris Speizman, Charlotte, N. C.

Montgomery Knitting Mill, Summerville, Ga., has work nearing completion on one-story addition, for expansion. Cost reported over $40,000, with equipment.

Ragan - Parker Knitting Mill, Ellerbe, N. C., closed for some weeks, has been sold to the Commonwealth Hosiery Co., Randleman, N. C., and has been started up.

Real Silk Hosiery Mills report net profit of $11,586 for first half of 1941 against net loss of $482,330 for similar period of 1940.

Southland Hosiery Mills, Inc., Greensboro, N. C., has incorporated with authorized capital of $100,000. Incorporators are F. K. Wilkins, Theodore Sammet and Harry Rockwell, all of Greensboro.

Tricnit Hosiery Mill has been established in Greenville, N. H., by Philip C. Thayer and William H. Moore of New Ipswich. Machinery has been installed for the manufacture of exclusive patterns on Banner wrap and reverse plait men's hose to be sold through Iselin-Jefferson Co., New York.

True Knit Hosiery Co., 44 North Third St., Philadelphia, Pa., has taken over two five-story buildings at 49 and 51 North Third St., to be used for expansion.

Wiscassett Mills Co., Albemarle, N. C., has begun erection of two one story additions, 30 x 68 ft., and 30 x 50 ft., for which general contract recently was awarded to D. A. Holbrook Co., Albemarle. First noted building will be used for storage, and other structure for office and general service.

Processing Plant News

Alexander Mfg. Co., Forest City, N. C., has been purchased by the North Carolina Finishing Co., Salisbury, N. C.

Continental Textile Printing Corp., new organization of which Charles Neuman of New York is president and treasurer, has taken over the former Rockfall Woolen Co. buildings at Middletown, Conn. A new system of textile printing for finishing of dress and curtain fabrics from silk, rayon and cotton, will be utilized. It includes art work and printing by hand. Arnold Eddy will be in charge of the plant.

Decorative Textiles, Inc., Pawtucket, R. I., recently organized with capital of $15,000, by John Ferguson, Westerly, R. I., and associates, plans early operation of local printing and finishing mill.

Gunther-Wolff, Inc., Williamsport, Pa., acquired 20,000 sq. ft. floor space in the former United States Rubber Co. building to expand its finishing and dyeing business.

Housatonic Dyeing & Printing Co., Derby, Conn., has let general contract to Harold Wakely, Seymour, Conn., for one-story addition, 37 x 76 ft. Cost about $22,000, with equipment.

Lawrence (Mass.) **Print Works, Inc.,** have been formed by Aspinook Corp., of Jewett City., Conn., to operate the former Pacific Print Works, Lawrence, Mass., lately acquired. Joseph Talbot is general superintendent, and Raymond E. Caffrey, former superintendent of the Pacific plant is general manager. Of the 50 printing machines which were operated in the plant at one time, 17 remain. Initial operations will be on single shift.

Liondale Bleach Dye & Print Works, Rockaway, N. J., has been sold to Standard Container Corp. of Bloomfield, N. J. Sale was handled by A. M. Kahn of Consolidated Products Corp., New York.

Neversink Dye Works, Reading, Pa., have been granted a permit for erection of an addition to their plant at 500 Pear St. at a cost of $2,000. L. H. Focht & Son are the contractors.

Normandy Print Works, New Bedford, Mass., is expanding its screen printing facilities on the first and second floors of former Booth mill.

Southbridge (Mass.) **Finishing Co.** suffered $15,000 damage at its Sandersdale plant through fire started by lightning late in July.